MOFFAT
COLLECTION SYSTEM PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

Appendix N:
Comments Received on the Draft EIS and Responses

Photo provided courtesy of Denver Water.

MOFFAT
COLLECTION SYSTEM PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

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Comments Received on the Draft EIS and Responses

Photo provided courtesy of Denver Water.

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Table N-1 Index of Moffat Project Commenters on the Draft EIS

List of Acronyms

%	percent
AASHTO	American Association of State Highway and Transportation Officials
ACI	air curtain incinerator
AF	acre-feet
AF/yr	acre-feet per year
ANFO	Ammonium Nitrate Fuel Oil
APCD	Air Pollution Control Division
APEN	Air Pollutant Emission Notice
ARNF	Arapaho & Roosevelt National Forests
ARNI	aquatic resource of national importance
ASR	aquifer storage and recovery
AWTP	Advanced Water Treatment Plant
BA	Biological Assessment
BBA	Bishop-Brogden Associates, Inc.
Bi-City	Littleton-Englewood
BLM	Bureau of Land Management
BO	Biological Opinion
C-BT	Colorado-Big Thompson
CAA	Clean Air Act
CDNR	Colorado Department of Natural Resources
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CDWR	Colorado Division of Water Resources
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNHP	Colorado Natural Heritage Program

List of Acronyms (continued)

CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CPW	Colorado Parks and Wildlife
CR	County Road
CRCA	Colorado River Cooperative Agreement
C.R.S.	Colorado Revised Statute
CSA	Combined Service Area
CWA	Clean Water Act
CWCB	Colorado Water Conservation Board
cy	cubic yard
dB	decibel
dBA	A-weighted decibel scale
DEIS	Draft Environmental Impact Statement
Denver Water	Board of Water Commissioners
DOLA	Colorado Department of Local Affairs
DRCOG	Denver Regional Council of Governments
DWR	Division of Water Resources
EAP	Emergency Action Plan
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EPT	Ephemeroptera, Plecoptera and Trichoptera
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FR	Forest Road
FWCA	Fish and Wildlife Coordination Act
GB	greenback
GCSMP	Grand County Stream Management Plan

List of Acronyms (continued)

GCWIN	Grand County Water Information Network
GCWSD	Grand County Water and Sanitation District
GHG	greenhouse gas
GWdb	groundwater discharge
GWua	groundwater underflow
HDR	HDR Engineering, Inc.
ID	Identification
IFIM	Instream Flow Incremental Methodology
IGA	Intergovernmental Agreement
IHA	Indicators of Hydrologic Alteration
IRP	Integrated Resources Plan
JSA	Joint Sewer Authority
LBD	Learning by Doing
LEDPA	least environmentally damaging practicable alternative
LG	logistics
LIRF	lawn irrigation return flows
M&E	Monitoring and Evaluation
MEPP	Magnolia Environmental Preservation Plan
Metro WWTP	Metro Reclamation District Wastewater Treatment Plant
mgd	million gallons per day
mg/L	milligrams per liter
MIS	Management Indicator Species
Moffat Project or Project	Moffat Collection System Project
MW	megawatt
MWAT	maximum weekly average temperature
NAAQS	National Ambient Air Quality Standards
NCWCD	Northern Colorado Water Conservancy District
NDIS	Natural Diversity Information System
NEPA	National Environmental Policy Act of 1969, as amended

List of Acronyms (continued)

NGO	non-governmental organization
NISP	Northern Integrated Supply Project
NOA	Notice of Availability
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NWCD	Northern Water Conservancy District
NWSRS	National Wild and Scenic Rivers System
O&M	operations and maintenance
ORV	Outstandingly Remarkable Value
PACSM	Platte and Colorado Simulation Model
PAOT	persons at one time
PBO	Programmatic Biological Opinion
PCA	Potential Conservation Area
PHABSIM	Physical Habitat Simulation
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PMSA	Primary Metropolitan Statistical Area
PRRIP	Platte River Recovery Implementation Program
RDC	relative development cost
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RFFA	reasonably foreseeable future action
RMP	Resource Management Plan
ROD	Record of Decision
ROM	rough order-of-magnitude
ROW	right-of-way
SDS	Southern Delivery System
SEO	State Engineer's Office
SH	State Highway
SHPO	State Historic Preservation Officer
SMWSA	South Metro Water Supply Authority

List of Acronyms (continued)

SPPP	South Platte Protection Plan
SRI/CSE	Stream Reach Inventory and Channel Stability Evaluation
SWA	State Wildlife Area
SWR	Strategic Water Reserve
TDS	total dissolved solids
TMDL	total maximum daily load
UPCO	Upper Colorado River Basin Study
UPRR	Union Pacific Railroad
URS	URS Corporation
US #	U.S. Highway #
U.S.	United States
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WFET	Watershed Flow Evaluation Tool
WGFP	Windy Gap Firming Project
WISE	Water Infrastructure and Supply Efficiency
WPW&SD	Winter Park Water and Sanitation District
WQCD	Water Quality Control Division
WTP	Water Treatment Plant
WUA	weighted usable area
WWTP	Wastewater Treatment Plant

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Appendix N presents the U.S. Army Corps of Engineers' (Corps') responses to the comments received on the Moffat Collection System Project (Moffat Project or Project) Draft Environmental Impact Statement (DEIS). Comments received on the DEIS during the public comment period were reviewed and considered in preparation of the Final Environmental Impact Statement (FEIS).

The Federal Energy Regulatory Commission (FERC), in its role as a Cooperating Agency in the National Environmental Policy Act of 1969, as amended (NEPA) process, reviewed the comments received on the DEIS related to Gross Reservoir, which is part of the Gross Reservoir Project, a hydroelectric project (P-2035) licensed by FERC. FERC then provided input to the Corps on comments that involved Gross Reservoir. The majority of FERC's input was provided to keep clear FERC's jurisdiction and its role in the review of the proposed Moffat Project. Prior to beginning any construction activities at Gross Reservoir associated with the Moffat Project, the Board of Water Commissioners (Denver Water) would need to receive construction authorization from FERC. Denver Water would also need to receive prior FERC approval of certain construction plans, and plans for protection and mitigation of values such as recreation and cultural resources at Gross Reservoir. Additionally, Denver Water would need to receive FERC approval to temporarily or permanently amend any plans that have already received approval or would need to be developed under the FERC license, such as plans involving recreation and cultural resources protection.

As part of the overall license amendment process, Denver Water will be responding to comments received on the Draft License Amendment Application for the Gross Reservoir Hydroelectric Project. Denver Water will submit a Final License Amendment Application to FERC sometime after the release of the Moffat Project FEIS.

For responses that reference the proposed dam elevation, maximum reservoir water level, volume, surface area, and shoreline length at Gross Reservoir, readers are reminded that Table 2-11 in Chapter 2 of the Moffat Project FEIS contains a comparison of Gross Dam and Reservoir features by alternative. Chapter 2 and Appendices H-22 and M-2 of the Moffat Project FEIS contain information about the Environmental Pool. The environmental effects discussed in Chapter 5 of the Moffat Project FEIS for surface water correspond with the 72,000-acre-foot (AF) enlargement, whereas the operations and effects associated with the 5,000-AF Environmental Pool, as independently evaluated by the Corps, are discussed in Appendices H-22 and M-2, as are additional analyses conducted by the Corps for recreation and aquatic biological resources associated with the Environmental Pool. In summary, the environmental effects of a 77,000-AF expansion are expected to be similar to the 72,000-AF expansion.

Approximately 2,700 comment letters/submissions were received on the DEIS, resulting in almost 5,000 individual comments.

Of the comment letters received, 18 form letters were identified and named/organized as follows:

- Angling Community
- Boating Petition

- Boulder County
- Coal Creek Canyon
- Colorado Resident
- Crown Jewel
- Grand County Board of Realtors #1
- Grand County Board of Realtors #2
- Gross Reservoir Expansion
- Gross Reservoir
- Not Adequately
- Not Adequately Modified
- Online Petition
- Protest Family
- Save the Fraser River
- Strong Support
- Urge You
- Urge You Modified

Comment letters received on the DEIS that did not fall under one of the form letter categories bulleted above were grouped and organized as follows:

- Federal
- Jurisdictions/Municipalities, Parts A-E
- Organizations/Stakeholders, Parts A and B
- Public, Parts A-E
- State

The majority of the comments received on the DEIS were related to conservation/reuse water, general support/general opposition of the Moffat Project, surface water, mitigation/ enhancement measures, water quality, total environmental effects (i.e., cumulative effects), and aquatic biological resources.

Comments received were assigned a unique Submission Identification (ID) number. Within each submission, the individual comments, questions, or issues were then assigned a unique Comment ID. For example, Submission ID 48 contains three separate comments, designated as Comment IDs 681, 683, and 684. Comment Numbers appearing with dashes (e.g., Comment #159-1) are *randomly* assigned tracking numbers for the Corps' internal use, and convey no special meaning or significance – *when those numbers skip consecutive numbering or appear out of sequence, it is not an issue and should not create concern*.

The comment-response reports are organized in three-column format with the left column containing the commenter's identification information; the middle column containing the image of the comment letters and any attachments to those letters; and the right column containing the comments (italic font) and responses (regular font). Some responses may refer to another response within the same Submission ID, and some responses may refer to changes made in the text of the FEIS as a result of the comment.

For the form letter reports, comments and responses to the individual standard form letters appear under the blue STANDARD heading; any *additional comments* that were provided on a form letter appear in the same report, but under the UNIQUE heading.

In the interest of privacy, the Corps made every effort to redact the comment-response reports contained in Appendix N based on the following general guidance:

- Private individual's personal contact and private business information (including e-mail address, phone, and physical address, but excluding individual name) has been redacted to the extent possible.
- Information pertaining to anyone acting in an official capacity for or representing a government agency or non-governmental organization has not been redacted.

Note: Private individuals' personal contact information to include their email address, home phone number, and home address has been redacted to the extent possible under the Privacy Act.

Table N-1 is an index (organized by alphabetical order of commenter last name) that contains a list of all the comment submissions received on the DEIS. Due to the large volume of comments and responses contained in Appendix N, it has been broken into multiple PDF files, including Parts 1 through 4, and is provided in its entirety on disk (*for those readers receiving a paper copy of the FEIS, the disk is located behind Table N-1*).

Readers wishing to request a personal copy of Appendix N on disk should contact:

Rena Brand, Moffat EIS Project Manager
U.S. Army Corps of Engineers, Omaha District
Denver Regulatory Office
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Littleton, CO 80128
Fax: 303-979-0602
Email: moffat.eis@usace.army.mil

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Table N-1
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
23	--	--	--	--	Part 3 PDF, Public Part A
63	--	--	--	--	Part 3 PDF, Public Part A
413	--	--	--	--	Part 3 PDF, Public Part A
464	--	--	--	Fish and Wildlife Service	Part 1 PDF, Federal
836	--	--	--	Colorado River Water Conservation District	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Middle Park Water Conservancy District	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Northwest Colorado Council of Governments	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Summit County	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Trout Unlimited	Part 1 PDF, Jurisdictions/Municipalities Part C
836	--	--	--	Western Resource Advocates	Part 1 PDF, Jurisdictions/Municipalities Part C
870	--	--	Board of Directors	Lakehurst Water and Sanitation District	Part 1 PDF, Jurisdictions/Municipalities Part C
873	--	--	--	--	Part 1 PDF, Angling Community Form Letters
1191	--	--	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1469	--	--	--	--	Part 4 PDF, Public Part D
1721	--	--	--	--	Part 4 PDF, Public Part E
1725	--	--	--	--	Part 2 PDF, Organizations/Stakeholders Part B
2790	--	--	--	--	Part 2 PDF, Online Petition Form Letters
614	--	Art	--	--	Part 1 PDF, Grand County Board of Realtors #1 Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
387	--	Bill	--	--	Part 1 PDF, Angling Community Form Letters
178	--	Dino	--	--	Part 1 PDF, Angling Community Form Letters
835	--	Ed	--	--	Part 3 PDF, Public Part B
274	--	Sibel	--	--	Part 1 PDF, Angling Community Form Letters
1118	Abo	Ronald K.	--	--	Part 4 PDF, Strong Support Form Letters
1537	Absetz	Ralph	--	--	Part 4 PDF, Urge You Modified Form Letters
821	Acee	Ron	--	--	Part 1 PDF, Angling Community Form Letters
743	Achey	Jane	Legal Assistant	Pitkin County Attorney's Office	Part 1 PDF, Jurisdictions/Municipalities Part A
1605	Ackley	Eugene R.	--	--	Part 4 PDF, Public Part D
1623	Adair	Glenn	--	--	Part 2 PDF, Organizations/Stakeholders Part B
1137	Aiken	Elise	--	--	Part 1 PDF, Colorado Resident Form Letters
2302	Aitken	Leonard	--	--	Part 2 PDF, Online Petition Form Letters
2350	Alamo	Joel	--	--	Part 2 PDF, Online Petition Form Letters
1931	Alander	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
2196	Albertini	Jesse	--	--	Part 2 PDF, Online Petition Form Letters
51	Albertson	Jack	--	--	Part 3 PDF, Public Part A
2341	Alder	Kristi	--	--	Part 2 PDF, Online Petition Form Letters
326	Aldridge	Dustin S.	--	--	Part 1 PDF, Angling Community Form Letters
2319	Alexander	Pam	--	--	Part 2 PDF, Online Petition Form Letters
745	Alexander	Sandy	Legal Assistant	Cazier, McGowan & Walker	Part 1 PDF, Jurisdictions/Municipalities Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
853	Allai	Todd C.	--	--	Part 1 PDF, Angling Community Form Letters
613	Allen	Alice	--	--	Part 3 PDF, Public Part A
1250	Allen	Chip	--	--	Part 4 PDF, Urge You Form Letters
2414	Allen	Elizabeth	--	--	Part 2 PDF, Online Petition Form Letters
2416	Allen	Michael	--	--	Part 2 PDF, Online Petition Form Letters
24	Allen	Sam	--	--	Part 3 PDF, Public Part A
660	Allison	Brian	--	--	Part 4 PDF, Save the Fraser River Form Letters
654	Alpern	Donald	--	--	Part 4 PDF, Save the Fraser River Form Letters
650	Alpern	Erika	--	--	Part 4 PDF, Save the Fraser River Form Letters
344	Altman	Ron	--	--	Part 1 PDF, Angling Community Form Letters
2109	Amen	John	--	--	Part 2 PDF, Online Petition Form Letters
2412	Amichaux	Shelbi	--	--	Part 2 PDF, Online Petition Form Letters
1569	Amyot	Caleb	--	--	Part 4 PDF, Urge You Modified Form Letters
2264	Anderson	Claudia	--	--	Part 2 PDF, Online Petition Form Letters
2265	Anderson	Clifford	--	--	Part 2 PDF, Online Petition Form Letters
2418	Anderson	Cori	--	--	Part 2 PDF, Online Petition Form Letters
992	Anderson	Debbie	--	--	Part 2 PDF, Not Adequately Form Letters
2298	Anderson	Edna	--	--	Part 2 PDF, Online Petition Form Letters
1273	Anderson	Larry	--	--	Part 4 PDF, Urge You Form Letters
2733	Anderson	Lori	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1294	Anderson	Michael	--	--	Part 4 PDF, Urge You Form Letters
1274	Anderson	Monica	Secretary Treasurer	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
1934	Anderson	Monica	--	--	Part 2 PDF, Online Petition Form Letters
1477	Anderson	Robert	--	--	Part 4 PDF, Urge You Modified Form Letters
1936	Anderson	Ryan	--	--	Part 2 PDF, Online Petition Form Letters
992	Anderson	Steve	--	--	Part 2 PDF, Not Adequately Form Letters
789	Andes-Groges	Linda	--	Boulder County Audubon Society	Part 2 PDF, Organizations/Stakeholders Part A
1206	Andrews	John	--	--	Part 4 PDF, Urge You Form Letters
1162	Appelhans	Frank	--	--	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
560	Applegit	Brent	--	--	Part 3 PDF, Public Part A
160	Arbogast	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
1607	Arce	Jason	--	--	Part 4 PDF, Public Part D
1606	Arce	Ryan	--	--	Part 4 PDF, Public Part D
301	Arcenia	David	--	--	Part 1 PDF, Angling Community Form Letters
502	Arnold	Andy	--	--	Part 3 PDF, Public Part A
528	Arnold	Andy	--	--	Part 3 PDF, Public Part A
1000	Arnold	Charles	--	--	Part 4 PDF, Urge You Form Letters
491	Arnold	Landis	--	--	Part 3 PDF, Public Part A
2643	Aronson	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
249	Ashbaugh	Scott	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1751	Ashby	Brendan	--	--	Part 1 PDF, Angling Community Form Letters
1596	Asher	Don	--	--	Part 4 PDF, Urge You Form Letters
379	Asmuth	Bob	--	--	Part 1 PDF, Angling Community Form Letters
939	Atkinson	Ruth	--	--	Part 3 PDF, Public Part B
1608	Atkinson	Ruth	--	--	Part 4 PDF, Public Part D
1844	Auchincloss	Hugh	--	--	Part 2 PDF, Online Petition Form Letters
475	Avey	John	--	--	Part 1 PDF, Angling Community Form Letters
1329	Axelson	John	--	--	Part 4 PDF, Urge You Form Letters
2766	Ayre	Theresa	--	--	Part 2 PDF, Online Petition Form Letters
1471	Babb	Anthony	--	--	Part 4 PDF, Urge You Modified Form Letters
448	Babcock	Walter D.	--	--	Part 1 PDF, Angling Community Form Letters
838	Bach	Jennifer	--	--	Part 4 PDF, Save the Fraser River Form Letters
2694	Bach	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
1313	Bachhuber	Carl	--	--	Part 4 PDF, Urge You Form Letters
231	Bachhuber	Charles	--	--	Part 1 PDF, Angling Community Form Letters
940	Bacon	Larry W.	--	--	Part 3 PDF, Public Part B
2247	Bacon	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
2254	Bacon	Sam	--	--	Part 2 PDF, Online Petition Form Letters
2248	Bacon	Todd	--	--	Part 2 PDF, Online Petition Form Letters
2266	Badewitz	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2228	Bahm	Matt	--	--	Part 2 PDF, Online Petition Form Letters
864	Bailey	David	President	Silver Creek Water and Sanitation District	Part 1 PDF, Jurisdictions/Municipalities Part C
1896	Bailey	Jefferson	--	--	Part 2 PDF, Online Petition Form Letters
2245	Bailey	Nicole	--	--	Part 2 PDF, Online Petition Form Letters
1609	Baily	Jenifer	--	--	Part 4 PDF, Public Part D
1455	Baines	BJ	--	--	Part 4 PDF, Urge You Modified Form Letters
1591	Baker	Charles	--	--	Part 4 PDF, Urge You Form Letters
1286	Baker	David	--	--	Part 4 PDF, Urge You Form Letters
1377	Baker	Edwin	--	--	Part 4 PDF, Urge You Form Letters
1120	Baker	Fred	--	--	Part 4 PDF, Strong Support Form Letters
1277	Baker	Ronald	--	--	Part 4 PDF, Urge You Form Letters
498	Balaster	Ammon	--	--	Part 3 PDF, Public Part A
974	Balaster	Ammon	--	--	Part 1 PDF, Gross Reservoir Form Letters
1098	Balaster	Ammon	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1113	Balaster	Ammon	--	--	Part 1 PDF, Boulder County Form Letters
1128	Baldwin	Beth	--	--	Part 1 PDF, Colorado Resident Form Letters
2220	Baldwin	Sue	--	--	Part 2 PDF, Online Petition Form Letters
655	Baldwin	Sylvia	--	--	Part 4 PDF, Save the Fraser River Form Letters
1358	Balentine	Doyle	--	--	Part 4 PDF, Urge You Form Letters
1214	Ball	Larry	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2260	Bambrough	Lindy	--	--	Part 2 PDF, Online Petition Form Letters
1148	Banducci	Angela	--	--	Part 1 PDF, Colorado Resident Form Letters
1381	Bandy	Dan	--	--	Part 4 PDF, Urge You Form Letters
1985	Barillari	Janie	--	--	Part 2 PDF, Online Petition Form Letters
2521	Barker	Catherine	--	--	Part 2 PDF, Online Petition Form Letters
943	Barlow	Dennis	--	--	Part 3 PDF, Public Part B
2066	Barnes	Bob	--	--	Part 2 PDF, Online Petition Form Letters
2415	Barnes	Connor	--	--	Part 2 PDF, Online Petition Form Letters
2402	Barnes	Donna	--	--	Part 2 PDF, Online Petition Form Letters
1554	Barnett	Aaron	--	--	Part 4 PDF, Urge You Modified Form Letters
1164	Barnett	David C.	--	--	Part 4 PDF, Public Part C
1164	Barnett	Susan J.	--	--	Part 4 PDF, Public Part C
329	Barnwell	Marc	--	--	Part 1 PDF, Angling Community Form Letters
1682	Barone	Frank	President	Arvada Economic Development Association	Part 2 PDF, Organizations/Stakeholders Part B
1553	Barr	Betty	--	--	Part 4 PDF, Urge You Form Letters
337	Barrett	Terry R.	--	--	Part 1 PDF, Angling Community Form Letters
70	Barron	Pat	--	--	Part 2 PDF, Organizations/Stakeholders Part A
496	Barrow	Mike	Representative	Boulder Mountain Bike Alliance	Part 2 PDF, Organizations/Stakeholders Part A
1139	Barry	James	--	--	Part 1 PDF, Colorado Resident Form Letters
852	Barry	P.	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1763	Barstnar	Kathie	Executive Director	NAIOP, Commercial Real Estate Development Association, Colorado Chapter	Part 2 PDF, Organizations/Stakeholders Part B
356	Bartlett	Elisha	--	--	Part 1 PDF, Angling Community Form Letters
2616	Barworth	David	--	--	Part 2 PDF, Online Petition Form Letters
866	Batchelder	Kevin	Town Manager	Town of Silverthorne	Part 1 PDF, Jurisdictions/Municipalities Part C
222	Bates	Matthew	--	--	Part 1 PDF, Angling Community Form Letters
563	Bates	Tiffany	--	--	Part 1 PDF, Angling Community Form Letters
1394	Batterson	Edward	--	--	Part 4 PDF, Urge You Form Letters
424	Batura	Dave	--	--	Part 3 PDF, Public Part A
346	Baumgarten	Robert	--	--	Part 1 PDF, Angling Community Form Letters
2710	Baumgarten	Thomas	--	--	Part 2 PDF, Online Petition Form Letters
2755	Beals	Robert	--	--	Part 2 PDF, Online Petition Form Letters
559	Beardsley	Fred	--	--	Part 1 PDF, Angling Community Form Letters
2235	Bechtol	Currie	--	--	Part 2 PDF, Online Petition Form Letters
411	Beck	Alex M.	--	--	Part 1 PDF, Angling Community Form Letters
2126	Beck	Corey	--	--	Part 2 PDF, Online Petition Form Letters
2515	Becker	Erynne	--	--	Part 2 PDF, Online Petition Form Letters
1683	Beckman	AJ	District Manager	Jefferson Center Metropolitan District No. 2	Part 2 PDF, Jurisdictions/Municipalities Part E
632	Becksmith	Lynette	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
781	Beckwith	Drew	Water Policy Analyst	Western Resource Advocates	Part 2 PDF, Organizations/Stakeholders Part A
796	Beckwith	Drew	Water Policy Analyst	Western Resource Advocates	Part 2 PDF, Organizations/Stakeholders Part A
2312	Beckwith	Tom	--	--	Part 2 PDF, Online Petition Form Letters
867	Beechick	Dr. Ruth	--	--	Part 3 PDF, Public Part B
691	Belew-LaDue	B.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2115	Belew-LaDue	Brene	--	--	Part 2 PDF, Online Petition Form Letters
1684	Belknap	Barbara J.	--	--	Part 4 PDF, Public Part E
1748	Bellac	Patricia	--	--	Part 4 PDF, Save the Fraser River Form Letters
2268	Bellamy	Sara	--	--	Part 2 PDF, Online Petition Form Letters
1937	Bellatty	Doug	--	--	Part 2 PDF, Online Petition Form Letters
1764	Bellatty	Douglas A.	--	--	Part 4 PDF, Public Part E
1935	Bellatty	Lynn	--	--	Part 2 PDF, Online Petition Form Letters
2058	Beltman	Jenny	--	--	Part 2 PDF, Online Petition Form Letters
2024	Bender	Melanie	--	--	Part 2 PDF, Online Petition Form Letters
1254	Benedetti	Paul	--	--	Part 4 PDF, Urge You Form Letters
1793	Bening	Candy	--	--	Part 2 PDF, Online Petition Form Letters
285	Bennett	Douglas	--	--	Part 3 PDF, Public Part A
2482	Bennett Brown	Julie	--	--	Part 2 PDF, Online Petition Form Letters
165	Bennight	Rick	--	--	Part 1 PDF, Angling Community Form Letters
499	Bensard	Anne	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
944	Bensard	Anne	--	--	Part 3 PDF, Public Part B
1085	Bensard	Anne	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1163	Bensard	Claire	--	--	Part 1 PDF, Colorado Resident Form Letters
1169	Bensard	Denis D.	--	--	Part 1 PDF, Colorado Resident Form Letters
1167	Bensard	Jerilyn	--	--	Part 1 PDF, Colorado Resident Form Letters
1610	Benson	Judith	--	--	Part 4 PDF, Public Part D
812	Beranato	Philip	--	--	Part 1 PDF, Angling Community Form Letters
841	Berg	Ashley	--	--	Part 4 PDF, Save the Fraser River Form Letters
1211	Bergen	Chan	--	--	Part 4 PDF, Urge You Form Letters
627	Bergen	Keith	--	--	Part 4 PDF, Save the Fraser River Form Letters
796	Bergeron	Adam	--	The Nature Conservancy	Part 2 PDF, Organizations/Stakeholders Part A
2146	Bergman	Shmuel	--	--	Part 2 PDF, Online Petition Form Letters
2140	Bergman	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2486	Bergman	Victor	--	--	Part 2 PDF, Online Petition Form Letters
3	Berman	Patricia	--	--	Part 3 PDF, Public Part A
2560	Bernard	Mary	--	--	Part 2 PDF, Online Petition Form Letters
2443	Bernardy	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2347	Bernstein	Wes	--	--	Part 2 PDF, Online Petition Form Letters
247	Berry	David	--	--	Part 1 PDF, Angling Community Form Letters
2199	Berry	Rodney	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
240	Best	Charles	--	--	Part 1 PDF, Angling Community Form Letters
168	Bever	Luke	--	--	Part 1 PDF, Angling Community Form Letters
1505	Bevington	Richard	--	--	Part 4 PDF, Urge You Modified Form Letters
618	Bierly	James	--	--	Part 3 PDF, Public Part A
2190	Billiet	D.	--	--	Part 2 PDF, Online Petition Form Letters
325	Billig	Jos.	--	--	Part 1 PDF, Angling Community Form Letters
2209	Birch	Andy	--	--	Part 2 PDF, Online Petition Form Letters
2178	Bissell	Mary	--	--	Part 2 PDF, Online Petition Form Letters
434	Bissell	Willard	--	--	Part 1 PDF, Angling Community Form Letters
1514	Bissell	Willard	--	--	Part 4 PDF, Urge You Modified Form Letters
1541	Bitterton	Britt	--	--	Part 4 PDF, Urge You Modified Form Letters
242	Bittner	Jim	--	--	Part 1 PDF, Angling Community Form Letters
1170	Bittner	Mike	Chairman	Summit Water Quality Committee	Part 2 PDF, Jurisdictions/Municipalities Part E
2391	Bjerken	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
217	Black	Karina	--	--	Part 1 PDF, Angling Community Form Letters
2818	Black	Lewis	--	--	Part 2 PDF, Online Petition Form Letters
1267	Blackburn	Paul	--	--	Part 4 PDF, Urge You Form Letters
2742	Blagen	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
809	Blakey	Teagen	--	--	Part 3 PDF, Public Part B
740	Bledsoe, PhD, P.E.	Brian P.	--	--	Part 2 PDF, Organizations/Stakeholders Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2748	Blevins	Martha	--	--	Part 2 PDF, Online Petition Form Letters
2094	Blizzard	Ryan	--	--	Part 2 PDF, Online Petition Form Letters
549	Bloede	Paul	--	--	Part 3 PDF, Public Part A
2299	Bloxham	Tod	--	--	Part 2 PDF, Online Petition Form Letters
2460	Blumenfeld	Howard	--	--	Part 2 PDF, Online Petition Form Letters
1335	Boak	James	--	--	Part 4 PDF, Urge You Form Letters
2031	Bobo	Ashley	--	--	Part 2 PDF, Online Petition Form Letters
2665	Boecklen	Bill	--	--	Part 2 PDF, Online Petition Form Letters
2293	Boehmer	Stephen	--	--	Part 2 PDF, Online Petition Form Letters
1584	Bolach	Francis	--	--	Part 4 PDF, Urge You Form Letters
2118	Boland	Pam	--	--	Part 2 PDF, Online Petition Form Letters
1820	Bolei	Brenda	--	--	Part 2 PDF, Online Petition Form Letters
1611	Bolton	Charlie	--	--	Part 4 PDF, Public Part D
1143	Bomen	Jeffrey	--	--	Part 1 PDF, Colorado Resident Form Letters
793	Bonaker	Paige	Staff Biologist/GIS Specialist	Center for Native Ecosystems	Part 2 PDF, Organizations/Stakeholders Part A
1393	Bone	Gary	--	--	Part 4 PDF, Urge You Form Letters
2810	Bonfiglio	Valeria	--	--	Part 2 PDF, Online Petition Form Letters
2074	Boomer	Heather	--	--	Part 2 PDF, Online Petition Form Letters
1171	Booth	Matt	--	--	Part 4 PDF, Public Part C
1978	Borberg	Robert	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
442	Bornfriend	Lisa	--	--	Part 1 PDF, Angling Community Form Letters
2484	Bornfriend	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
1585	Borstad	Thomas	--	--	Part 4 PDF, Urge You Form Letters
2221	Bosshard	Maureen	--	--	Part 2 PDF, Online Petition Form Letters
1798	Bourdon	Sunny	--	--	Part 2 PDF, Online Petition Form Letters
206	Bourgeois	Paul	--	--	Part 1 PDF, Angling Community Form Letters
1341	Bowen	Jeff	--	--	Part 4 PDF, Urge You Form Letters
1278	Bowen	Ken	--	--	Part 4 PDF, Urge You Form Letters
193	Bowler	Brendan	--	--	Part 1 PDF, Angling Community Form Letters
2567	Boxwell	Robert	--	--	Part 2 PDF, Online Petition Form Letters
2217	Boyce	Amy	--	--	Part 2 PDF, Online Petition Form Letters
2135	Boyd	Millie	--	--	Part 2 PDF, Online Petition Form Letters
674	Boynton	B.	--	--	Part 4 PDF, Save the Fraser River Form Letters
682	Boynton	J.A.	--	--	Part 4 PDF, Save the Fraser River Form Letters
672	Boynton	Janice	--	--	Part 4 PDF, Save the Fraser River Form Letters
672	Boynton	Robert	--	--	Part 4 PDF, Save the Fraser River Form Letters
68	Boynton	Robert D.	--	--	Part 3 PDF, Public Part A
1918	Braaf	Chris	--	--	Part 2 PDF, Online Petition Form Letters
1809	Brachle	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
65	Bracksieck	George	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1612	Bradbury	Gregg	--	--	Part 4 PDF, Public Part D
514	Bradford	Duke	Representative	Colorado River Rafters Association	Part 2 PDF, Organizations/Stakeholders Part A
1816	Bradley	John	--	--	Part 2 PDF, Online Petition Form Letters
1279	Bradshaw	Michael	--	--	Part 4 PDF, Urge You Form Letters
1217	Brandt	Jeff	--	--	Part 4 PDF, Urge You Form Letters
1996	Braun-Sand	Sonja	--	--	Part 2 PDF, Online Petition Form Letters
1172	Brautigam	Jane S.	City Manager	City of Boulder	Part 2 PDF, Jurisdictions/Municipalities Part E
1875	Brenay	Kathe	--	--	Part 2 PDF, Online Petition Form Letters
219	Brenneman	R. Kelley	--	--	Part 1 PDF, Angling Community Form Letters
2079	Brenner	Sharon	--	--	Part 2 PDF, Online Petition Form Letters
2281	Brickner	Cassidi	--	--	Part 2 PDF, Online Petition Form Letters
941	Brickner	Jon	--	--	Part 3 PDF, Public Part B
687	Bridge	Justin	--	--	Part 4 PDF, Save the Fraser River Form Letters
1954	Bridge	Justin	--	--	Part 2 PDF, Online Petition Form Letters
1613	Brinkmann	M.H.	--	--	Part 4 PDF, Public Part D
1070	Bristol	Bill	--	--	Part 1 PDF, Angling Community Form Letters
729	Brock	Ben R.	Assistant Secretary/ Treasurer	South-East Englewood Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
1391	Brockway	Jerry	--	--	Part 4 PDF, Urge You Form Letters
140	Brodbelt	Shar	--	--	Part 1 PDF, Crown Jewel Form Letters
1281	Bromfield	Dave	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
182	Bronn	John	--	--	Part 1 PDF, Angling Community Form Letters
243	Bronson	Jonette	--	--	Part 1 PDF, Angling Community Form Letters
1614	Brooks	Joan C.	--	--	Part 4 PDF, Public Part D
461	Brooks	John	Representative	Greater Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
1883	Brooks	Scott	--	--	Part 2 PDF, Online Petition Form Letters
1274	Brosh	Rebecca	Past President	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
2133	Brothers	Fred	--	--	Part 2 PDF, Online Petition Form Letters
628	Brower	P.	--	--	Part 4 PDF, Save the Fraser River Form Letters
945	Brower	Patrick	--	--	Part 3 PDF, Public Part B
1491	Brower	William	--	--	Part 4 PDF, Urge You Modified Form Letters
1990	Brown	Josh	--	--	Part 2 PDF, Online Petition Form Letters
432	Brown	Michael R.	--	--	Part 1 PDF, Angling Community Form Letters
1594	Brown	Robin	--	--	Part 4 PDF, Urge You Form Letters
1130	Brown	Zachary	--	--	Part 1 PDF, Colorado Resident Form Letters
2708	Brown	Jane	--	--	Part 2 PDF, Online Petition Form Letters
684	Browne	Bill	--	--	Part 4 PDF, Save the Fraser River Form Letters
678	Browne	J.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1685	Browne	Jeffrey L.	--	--	Part 4 PDF, Public Part E
1843	Browne	Jeffrey L.	--	--	Part 2 PDF, Online Petition Form Letters
2086	Brown-Pickren	Liz	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2222	Bruchez	Paul	--	--	Part 2 PDF, Online Petition Form Letters
1615	Brumagin	Linda	--	--	Part 4 PDF, Public Part D
1234	Bruner	Dennis	--	--	Part 4 PDF, Urge You Form Letters
2454	Brunett	Shannon	--	--	Part 2 PDF, Online Petition Form Letters
267	Brush	Richard	--	--	Part 1 PDF, Angling Community Form Letters
2522	Bryant Parks	Meredith	--	--	Part 2 PDF, Online Petition Form Letters
1274	Brynoff	Debra	Executive Officer	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
1500	Buchholz	William	--	--	Part 4 PDF, Urge You Modified Form Letters
2490	Buchler	David	--	--	Part 2 PDF, Online Petition Form Letters
2325	Buckner	Marykay	--	--	Part 2 PDF, Online Petition Form Letters
336	Buhayar	Alexander	--	--	Part 3 PDF, Public Part A
2144	Buhayar	Deborah	--	--	Part 2 PDF, Online Petition Form Letters
1616	Buhayar	Deborah R.	--	--	Part 4 PDF, Public Part D
530	Buhire	Ellis	--	--	Part 3 PDF, Public Part A
2734	Buist	Becky	--	--	Part 2 PDF, Online Petition Form Letters
1468	Bumgarner	Bud	--	--	Part 4 PDF, Urge You Modified Form Letters
517	Bumgarner	Gary	County Commissioner	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
544	Bumgarner	Gary	County Commissioner	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
742	Burak	Dan	--	--	Part 2 PDF, Organizations/Stakeholders Part A
582	Burak	Gwyneth E.L.	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2709	Burford	Joyce	--	--	Part 2 PDF, Online Petition Form Letters
323	Burke	Angela	--	--	Part 3 PDF, Public Part A
529	Burke	Judy	Mayor	Town of Grand Lake	Part 1 PDF, Jurisdictions/Municipalities Part A
543	Burke	Judy	Mayor	Town of Grand Lake	Part 1 PDF, Jurisdictions/Municipalities Part A
1687	Burke	Judy M.	Mayor	Town of Grand Lake	Part 2 PDF, Jurisdictions/Municipalities Part E
2012	Burkhalter	Shari	--	--	Part 2 PDF, Online Petition Form Letters
1266	Burleson	Jeff	--	--	Part 4 PDF, Urge You Form Letters
2789	Burrows	David	--	--	Part 2 PDF, Online Petition Form Letters
2017	Burtis	Aurel	--	--	Part 2 PDF, Online Petition Form Letters
1833	Burton	Lauren	--	--	Part 2 PDF, Online Petition Form Letters
145	Bushnell	Dr. Martha W.	--	--	Part 1 PDF, Crown Jewel Form Letters
1443	Bussey	Lauren	--	--	Part 4 PDF, Urge You Form Letters
855	Butler	Joe	--	--	Part 1 PDF, Angling Community Form Letters
2057	Buttery	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
342	Cada	Frank	--	--	Part 1 PDF, Angling Community Form Letters
1559	Cada	Frank	--	--	Part 4 PDF, Urge You Form Letters
2442	Cahalane	Carol	--	--	Part 2 PDF, Online Petition Form Letters
2179	Cahalane	Craig	--	--	Part 2 PDF, Online Petition Form Letters
2078	Cahalane	Kristen	--	--	Part 2 PDF, Online Petition Form Letters
2607	Cahill	Susan	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2202	Caldwell	Charles	--	--	Part 2 PDF, Online Petition Form Letters
693	Caldwell	Tom	--	--	Part 4 PDF, Save the Fraser River Form Letters
946	Caldwell	Tom H.	--	--	Part 3 PDF, Public Part B
153	Calebaugh	Janette	--	--	Part 2 PDF, Not Adequately Form Letters
947	Calebaugh	Janette	--	--	Part 3 PDF, Public Part B
2337	Callas	Michael	--	--	Part 2 PDF, Online Petition Form Letters
712	Cameron	Christine L.	Mayor	City of Lafayette	Part 1 PDF, Jurisdictions/Municipalities Part A
949	Cameron	Sean	--	--	Part 3 PDF, Public Part B
2634	Camillo	Joseph	--	--	Part 2 PDF, Online Petition Form Letters
2041	Camillo	Thomas	--	--	Part 2 PDF, Online Petition Form Letters
2451	Campanello	Pat	--	--	Part 2 PDF, Online Petition Form Letters
765	Campbell	Carol L.	Acting Deputy Regional Administrator	United States Environmental Protection Agency, Region 8	Part 1 PDF, Federal
18	Campbell, MBA	Elena	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2462	Campton	Christian	--	--	Part 2 PDF, Online Petition Form Letters
159	Cannon	Jim	--	--	Part 1 PDF, Angling Community Form Letters
1316	Cannon	Joe	--	--	Part 4 PDF, Urge You Form Letters
162	Cannon	Joe A.	--	--	Part 1 PDF, Angling Community Form Letters
1276	Cannon	Larry	--	--	Part 4 PDF, Urge You Form Letters
1464	Caperton	Joe	--	--	Part 4 PDF, Urge You Modified Form Letters
1765	Capozzelli	J.	--	--	Part 4 PDF, Public Part E

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1215	Caprio	Tom	--	--	Part 4 PDF, Urge You Form Letters
1526	Cardenas	Nash	--	--	Part 4 PDF, Urge You Modified Form Letters
1383	Carlson	Everett	--	--	Part 4 PDF, Urge You Form Letters
1236	Carlton	Richard	--	--	Part 4 PDF, Urge You Form Letters
2008	Carney	Justina	--	--	Part 2 PDF, Online Petition Form Letters
1588	Carpenter	Charlton	--	--	Part 4 PDF, Urge You Form Letters
818	Carpenter	Joyce	--	--	Part 1 PDF, Angling Community Form Letters
1854	Carpenter	Lucinda	--	--	Part 2 PDF, Online Petition Form Letters
99	Carpenter	Todd	--	--	Part 3 PDF, Public Part A
1301	Carr	Patrick	--	--	Part 4 PDF, Urge You Form Letters
689	Carr	Shawn	--	--	Part 4 PDF, Save the Fraser River Form Letters
1301	Carr	Susan	--	--	Part 4 PDF, Urge You Form Letters
1243	Carrick	Bob	--	--	Part 4 PDF, Urge You Form Letters
702	Carroll	Charles	--	--	Part 4 PDF, Save the Fraser River Form Letters
702	Carroll	Suzanne	--	--	Part 4 PDF, Save the Fraser River Form Letters
1253	Carron	John	--	--	Part 4 PDF, Urge You Form Letters
2093	Carson	Meredith	--	--	Part 2 PDF, Online Petition Form Letters
2735	Carter	Cindy	--	--	Part 2 PDF, Online Petition Form Letters
1332	Carter	Mason	--	--	Part 4 PDF, Urge You Form Letters
1752	Carter	Tim	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1983	Carter	Tim	--	--	Part 2 PDF, Online Petition Form Letters
1892	Cartwright	James	--	--	Part 2 PDF, Online Petition Form Letters
738	Casamassa	Glenn P.	Forest Supervisor	United States Department of Agriculture, Forest Service, Arapaho & Roosevelt National Forests and Pawnee National Grassland	Part 1 PDF, Federal
2541	Castiello	Lydia	--	--	Part 2 PDF, Online Petition Form Letters
2283	Castle	Randall	--	--	Part 2 PDF, Online Petition Form Letters
2711	Cato	Larry	--	--	Part 2 PDF, Online Petition Form Letters
814	Cavendor	Philip N.	--	--	Part 1 PDF, Angling Community Form Letters
893	Celis	John	--	--	Part 1 PDF, Angling Community Form Letters
2068	Cervenka	Jim	--	--	Part 2 PDF, Online Petition Form Letters
645	Cervenka	M. Liza	--	--	Part 4 PDF, Save the Fraser River Form Letters
372	Ceurvorst	Joe	--	--	Part 3 PDF, Public Part A
912	Ceurvorst	Joe	Fire Chief	Coal Creek Canyon Fire Protection District	Part 2 PDF, Jurisdictions/Municipalities Part D
436	Ceurvorst	Robyn L.	--	--	Part 1 PDF, Angling Community Form Letters
372	Ceurvorst	Shelly	--	--	Part 3 PDF, Public Part A
1922	Chabot	Sarah	--	--	Part 2 PDF, Online Petition Form Letters
1136	Chan	Naree	--	--	Part 1 PDF, Colorado Resident Form Letters
459	Chapman	Clark	Member	Preserve Unique Magnolia Association	Part 2 PDF, Organizations/Stakeholders Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
751	Chapman	Clark	--	--	Part 3 PDF, Public Part A
48	Chapman	Clark R.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2573	Chapman	Koby	--	--	Part 2 PDF, Online Petition Form Letters
2806	Chapman	Ruth	--	--	Part 2 PDF, Online Petition Form Letters
751	Chapman	Y	--	--	Part 3 PDF, Public Part A
366	Charbonneau	Max	--	--	Part 1 PDF, Angling Community Form Letters
810	Chase	Julia	--	--	Part 3 PDF, Public Part B
730	Chase	Lita	--	--	Part 3 PDF, Public Part A
606	Chavez	Erica	--	--	Part 1 PDF, Angling Community Form Letters
1203	Cheadle	Shawn	--	--	Part 4 PDF, Urge You Form Letters
1122	Chesterton	Stephen M.	--	--	Part 1 PDF, Colorado Resident Form Letters
331	Christensen	Gerald	--	--	Part 1 PDF, Angling Community Form Letters
2333	Christensen	Wendy	--	--	Part 2 PDF, Online Petition Form Letters
2636	Chrysler	Jon	--	--	Part 2 PDF, Online Petition Form Letters
199	Chuckra	Stephen R.	--	--	Part 1 PDF, Angling Community Form Letters
1587	Chudzik	Chris	--	--	Part 4 PDF, Urge You Form Letters
60	Ciancaglini	Alex	--	--	Part 3 PDF, Public Part A
2208	Ciancaglini	Alex	--	--	Part 2 PDF, Online Petition Form Letters
2310	Cizek	Todd	--	--	Part 2 PDF, Online Petition Form Letters
238	Clapper	Willard L.	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1410	Clark	Ben	--	--	Part 4 PDF, Urge You Modified Form Letters
1315	Clark	David	--	--	Part 4 PDF, Urge You Form Letters
1881	Clark	David	--	--	Part 2 PDF, Online Petition Form Letters
1446	Clark	James	--	--	Part 4 PDF, Urge You Form Letters
950	Clark	Lynette	--	--	Part 3 PDF, Public Part B
1315	Clark	Marian	--	--	Part 4 PDF, Urge You Form Letters
876	Clark	Thomas A.	Mayor	Town of Kremmling	Part 1 PDF, Jurisdictions/Municipalities Part C
1467	Clarke	Richard A.	--	--	Part 4 PDF, Urge You Modified Form Letters
2155	Classen	Gillian	--	--	Part 2 PDF, Online Petition Form Letters
2138	Claypool	David	--	--	Part 2 PDF, Online Petition Form Letters
283	Cleaver	Tim	--	--	Part 1 PDF, Angling Community Form Letters
1784	Cleaver	Tim	--	--	Part 2 PDF, Online Petition Form Letters
668	Cleveland	Laura	--	--	Part 4 PDF, Save the Fraser River Form Letters
1968	Cleveland	Laura	--	--	Part 2 PDF, Online Petition Form Letters
1779	Clifton	Justin	--	--	Part 2 PDF, Online Petition Form Letters
2687	Cloninger	Cassidy Elizabeth	--	--	Part 2 PDF, Online Petition Form Letters
2660	Cloninger	Judith	--	--	Part 2 PDF, Online Petition Form Letters
2662	Cloninger, Jr.	David B.	--	--	Part 2 PDF, Online Petition Form Letters
951	Clough	Jay G.	--	--	Part 3 PDF, Public Part B
2225	Cluck	Amanda	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2563	Cobble	Jon	--	--	Part 2 PDF, Online Petition Form Letters
59	Coddington	Jack	--	--	Part 3 PDF, Public Part A
487	Coddington	Jack	--	--	Part 3 PDF, Public Part A
605	Coddington	Jack	--	--	Part 3 PDF, Public Part A
980	Coddington	Jack	--	--	Part 1 PDF, Gross Reservoir Form Letters
1049	Coddington	Jack	--	--	Part 3 PDF, Public Part B
1100	Coddington	Jack	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1116	Coddington	Jack	--	--	Part 1 PDF, Boulder County Form Letters
1691	Coddington	Jack	--	--	Part 4 PDF, Public Part E
1690	Coddington	Jack C.	--	--	Part 4 PDF, Public Part E
979	Coddington	K.	--	--	Part 1 PDF, Gross Reservoir Form Letters
59	Coddington	Kit	--	--	Part 3 PDF, Public Part A
478	Coddington	Kit	--	--	Part 1 PDF, Crown Jewel Form Letters
600	Coddington	Kit	--	Lakeshore Neighborhood	Part 2 PDF, Organizations/Stakeholders Part A
608	Coddington	Kit	--	--	Part 1 PDF, Angling Community Form Letters
1049	Coddington	Kit	--	--	Part 3 PDF, Public Part B
1101	Coddington	Kit	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1117	Coddington	Kit	--	--	Part 1 PDF, Boulder County Form Letters
1448	Coddington	Kit	--	--	Part 4 PDF, Public Part D
1691	Coddington	Kit	--	--	Part 4 PDF, Public Part E

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1138	Coffey-Urban	Aubrey	--	--	Part 1 PDF, Colorado Resident Form Letters
501	Coffin	Steve	--	--	Part 4 PDF, Urge You Form Letters
1395	Cohen	Michael	--	--	Part 4 PDF, Urge You Form Letters
482	Cohen	Michael A.	--	--	Part 3 PDF, Public Part A
1617	Cohen, PhD	Robert R.	--	--	Part 4 PDF, Public Part D
248	Cole	Mark R.	--	--	Part 1 PDF, Angling Community Form Letters
1453	Cole	Richard M.	--	--	Part 4 PDF, Public Part D
1618	Coleman	Jane	--	--	Part 4 PDF, Public Part D
1454	Coleman	Jim	--	--	Part 4 PDF, Urge You Modified Form Letters
1618	Coleman	Michael	--	--	Part 4 PDF, Public Part D
2741	Collette	Tiffany	--	--	Part 2 PDF, Online Petition Form Letters
677	Collette	Tiffiny	--	--	Part 4 PDF, Save the Fraser River Form Letters
1309	Collins	Anne	--	--	Part 4 PDF, Urge You Form Letters
172	Collins	Elaine	--	--	Part 1 PDF, Angling Community Form Letters
1720	Collins	Susan M.	--	Office of Archaeological and Historic Preservation	Part 4 PDF, State
1309	Collins	Tim	--	--	Part 4 PDF, Urge You Form Letters
2653	Coloninger III	David	--	--	Part 2 PDF, Online Petition Form Letters
1885	Combs	Barton	--	--	Part 2 PDF, Online Petition Form Letters
2062	Combs	Shawn	--	--	Part 2 PDF, Online Petition Form Letters
2134	Conger	Isabel	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
534	Conger	Todd	--	--	Part 3 PDF, Public Part A
1299	Conger	William	--	--	Part 4 PDF, Urge You Form Letters
1458	Conley	Jacqueline	--	--	Part 4 PDF, Public Part D
1802	Connell	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
2717	Conner	Kelly	--	--	Part 2 PDF, Online Petition Form Letters
1619	Conner	Shaun	--	--	Part 1 PDF, Angling Community Form Letters
2271	Conrad	Karin	--	--	Part 2 PDF, Online Petition Form Letters
2702	Coogan	Camillo	--	--	Part 2 PDF, Online Petition Form Letters
2422	Cook	Betsy	--	--	Part 2 PDF, Online Petition Form Letters
2556	Cook	Denise	--	--	Part 2 PDF, Online Petition Form Letters
275	Cook	Dennis F.	--	--	Part 1 PDF, Angling Community Form Letters
1692	Cook	Fran	Mayor	Town of Fraser	Part 2 PDF, Jurisdictions/Municipalities Part E
1327	Cook	John	--	--	Part 4 PDF, Urge You Form Letters
1753	Cook	Linda	--	--	Part 1 PDF, Angling Community Form Letters
1693	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E
1694	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E
1695	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E
1696	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E
1697	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E
1698	Cooke	Irene C.	--	--	Part 4 PDF, Public Part E

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1359	Cope	Gene	--	--	Part 4 PDF, Urge You Form Letters
2751	Cordova	Lyle R.	--	--	Part 2 PDF, Online Petition Form Letters
952	Corigan	Thomas	--	--	Part 3 PDF, Public Part B
1010	Corkill	Dave	--	--	Part 4 PDF, Urge You Form Letters
1868	Cormey	Stephen	--	--	Part 2 PDF, Online Petition Form Letters
1233	Corr	Tom	--	--	Part 4 PDF, Urge You Form Letters
2737	Corrigan	Mary Beth	--	--	Part 2 PDF, Online Petition Form Letters
2295	Cotter	Korina	--	--	Part 2 PDF, Online Petition Form Letters
1221	Coughlin	Jason	--	--	Part 4 PDF, Urge You Form Letters
639	Coulson	Patty Sue	--	--	Part 4 PDF, Save the Fraser River Form Letters
2171	Courtney	Brian	--	--	Part 2 PDF, Online Petition Form Letters
2589	Courville	Zoe	--	--	Part 2 PDF, Online Petition Form Letters
2258	Covey	David	--	--	Part 2 PDF, Online Petition Form Letters
2034	Covey	Nicholas	--	--	Part 2 PDF, Online Petition Form Letters
2759	Covey	Paul	--	--	Part 2 PDF, Online Petition Form Letters
2762	Covey	Henry	--	--	Part 2 PDF, Online Petition Form Letters
1938	Cowan-Starks	Glo	--	--	Part 2 PDF, Online Petition Form Letters
2002	Cowart	Lauren	--	--	Part 2 PDF, Online Petition Form Letters
834	Cowart, PE	Jim	--	--	Part 3 PDF, Public Part B
2081	Cox	Andrea	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
364	Cox	David	--	--	Part 1 PDF, Angling Community Form Letters
1699	Cox	illegible	Member	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #2 Form Letters
93	Crabtree	Elwin	--	--	Part 3 PDF, Public Part A
2084	Crandall	Lynn	--	--	Part 2 PDF, Online Petition Form Letters
700	Cranston	Craig	--	--	Part 4 PDF, Save the Fraser River Form Letters
2102	Crawford	Ronnie	--	--	Part 2 PDF, Online Petition Form Letters
1371	Crawford, Jr.	James	--	--	Part 4 PDF, Urge You Form Letters
451	Crifasi	Bob	Parks and Water Resources Administrator	City of Boulder, Open Space and Mountain Parks	Part 1 PDF, Jurisdictions/Municipalities Part A
1993	Cronin	Phuong	--	--	Part 2 PDF, Online Petition Form Letters
1229	Crosby	Chris	--	--	Part 4 PDF, Urge You Form Letters
2212	Crosby	Hayley	--	--	Part 2 PDF, Online Petition Form Letters
2224	Crosby	Patrick	--	--	Part 2 PDF, Online Petition Form Letters
1872	Crowder	Angeline	--	--	Part 2 PDF, Online Petition Form Letters
718	Crowley	Lawrence	--	--	Part 1 PDF, Crown Jewel Form Letters
2308	Cruickshank	Kelsey	--	--	Part 2 PDF, Online Petition Form Letters
1811	Crumbliss	Craig	--	--	Part 2 PDF, Online Petition Form Letters
270	Cudd	Adam	--	--	Part 1 PDF, Angling Community Form Letters
1620	Cudd	Adam	--	--	Part 4 PDF, Urge You Form Letters
315	Cudd	Joe	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2478	Cummings	Linda	--	--	Part 2 PDF, Online Petition Form Letters
2424	Cummins	Joanee	--	--	Part 2 PDF, Online Petition Form Letters
756	Curfman	James	--	--	Part 1 PDF, Angling Community Form Letters
716	Curfman	James G.	--	--	Part 3 PDF, Public Part A
492	Curfman	Jim	--	--	Part 3 PDF, Public Part A
141	Curlette	Diane	--	--	Part 1 PDF, Crown Jewel Form Letters
1440	Curran	Dennis	--	--	Part 4 PDF, Urge You Modified Form Letters
2568	Currie	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
2497	Curry	Dee	--	--	Part 2 PDF, Online Petition Form Letters
2495	Curry	Martin	--	--	Part 2 PDF, Online Petition Form Letters
717	Curtis	David	--	--	Part 3 PDF, Public Part A
717	Curtis	Jennie	--	--	Part 3 PDF, Public Part A
964	Curtis	Jennie	--	--	Part 1 PDF, Gross Reservoir Form Letters
1089	Curtis	Jennie	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1107	Curtis	Jennie	--	--	Part 1 PDF, Boulder County Form Letters
2712	Cushing	Colbert	--	--	Part 2 PDF, Online Petition Form Letters
94	Cushing	Don	--	--	Part 3 PDF, Public Part A
215	Cushing	Don	--	--	Part 1 PDF, Angling Community Form Letters
2572	Cutler	Christy	--	--	Part 2 PDF, Online Petition Form Letters
1174	Cutler	Rick	--	--	Part 4 PDF, Public Part C

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2165	Cyman	Juliana	--	--	Part 2 PDF, Online Petition Form Letters
2491	Czoski	Richard	--	--	Part 2 PDF, Online Petition Form Letters
896	Dale	Jerry A.	--	--	Part 1 PDF, Angling Community Form Letters
712	Dallam	Brad	--	City of Lafayette	Part 1 PDF, Jurisdictions/Municipalities Part A
2673	Dalton	Janie	--	--	Part 2 PDF, Online Petition Form Letters
1398	Damato	Paul	--	--	Part 4 PDF, Urge You Form Letters
2487	Dance	Andrea	--	--	Part 2 PDF, Online Petition Form Letters
2669	Dance	Ian	--	--	Part 2 PDF, Online Petition Form Letters
1354	Daniel	George	--	--	Part 4 PDF, Urge You Form Letters
1223	Daniels	Bill	--	--	Part 4 PDF, Urge You Form Letters
1356	Darling	David	--	--	Part 4 PDF, Urge You Form Letters
1567	Davenport	John	--	--	Part 4 PDF, Urge You Modified Form Letters
807	David	Barbara	--	--	Part 3 PDF, Public Part B
807	David	Leonard	--	--	Part 3 PDF, Public Part B
2167	Davies	Alexey	--	--	Part 2 PDF, Online Petition Form Letters
1580	Davies	Stanley	--	--	Part 4 PDF, Urge You Form Letters
1838	Davis	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
1060	Davis	Jim P.	--	--	Part 1 PDF, Angling Community Form Letters
2612	Davis	Kristin	--	--	Part 2 PDF, Online Petition Form Letters
2237	Davis	Rama	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
686	Davis	Rama A.	--	--	Part 4 PDF, Save the Fraser River Form Letters
902	Davis	Rod	--	--	Part 1 PDF, Angling Community Form Letters
2602	Davis	Timothy	--	--	Part 2 PDF, Online Petition Form Letters
2318	Davis	Toby	--	--	Part 2 PDF, Online Petition Form Letters
587	Davis	William R.	--	--	Part 3 PDF, Public Part A
481	Davison	Mary Jean	--	--	Part 3 PDF, Public Part A
2413	Davison	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2813	Davlin	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
2726	Davlin	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2113	Dawes	Steve	--	--	Part 2 PDF, Online Petition Form Letters
1175	Day	Cheryl A.	--	--	Part 4 PDF, Public Part C
2304	Day	Janet	--	--	Part 2 PDF, Online Petition Form Letters
1621	Day	Timothy	--	--	Part 4 PDF, Public Part D
1304	De Lorimier	Jacques	--	--	Part 4 PDF, Urge You Form Letters
811	de Vos	Frances	--	--	Part 3 PDF, Public Part B
2197	De Voy	Dane	--	--	Part 2 PDF, Online Petition Form Letters
112	DeBoice	John	--	--	Part 3 PDF, Public Part A
266	DeBonville	Mark	--	--	Part 1 PDF, Angling Community Form Letters
1428	DeBonville	Mark	--	--	Part 4 PDF, Urge You Form Letters
1782	Debus	Matt	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2492	Dee	Kelly	--	--	Part 2 PDF, Online Petition Form Letters
317	Deem	Brian	--	--	Part 1 PDF, Angling Community Form Letters
2743	Degginger	Mary Ann	--	--	Part 2 PDF, Online Petition Form Letters
276	Degnan	Patrick H.	--	--	Part 1 PDF, Angling Community Form Letters
2006	Deis	Evan	--	--	Part 2 PDF, Online Petition Form Letters
1780	DeJong	Joel	--	--	Part 2 PDF, Online Petition Form Letters
1321	Dekloe	Roger	--	--	Part 4 PDF, Urge You Form Letters
2027	Delaney	Brendana	--	--	Part 2 PDF, Online Petition Form Letters
753	Delaney	Michael	President	Boulder County Nature Association	Part 2 PDF, Organizations/Stakeholders Part A
2405	Delay	Kara	--	--	Part 2 PDF, Online Petition Form Letters
1933	Delphia	Gale	--	--	Part 2 PDF, Online Petition Form Letters
2395	Delphia	Tim	--	--	Part 2 PDF, Online Petition Form Letters
261	Demmon	John	--	--	Part 1 PDF, Angling Community Form Letters
288	Dempster	Alex	--	--	Part 1 PDF, Angling Community Form Letters
370	DeNardo	Sarah	--	--	Part 1 PDF, Crown Jewel Form Letters
2380	Denney	Dana	--	--	Part 2 PDF, Online Petition Form Letters
2553	DePlata	Shawna	--	--	Part 2 PDF, Online Petition Form Letters
1032	Deputy	Hershal	Mayor	Town of Hot Sulphur Springs	Part 2 PDF, Jurisdictions/Municipalities Part D
1995	DeRee	Debra	--	--	Part 2 PDF, Online Petition Form Letters
914	Des Jardins	Genevieve	--	--	Part 3 PDF, Public Part B

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1865	deVries	Betsy	--	--	Part 2 PDF, Online Petition Form Letters
107	Dick	Donald	--	--	Part 3 PDF, Public Part A
107	Dick	Martha	--	--	Part 3 PDF, Public Part A
829	Dickensheets	Karl	--	--	Part 3 PDF, Public Part B
1700	Dickinson	Bruce R.	--	--	Part 4 PDF, Public Part E
828	Dickson	Jody	--	--	Part 3 PDF, Public Part B
1283	Dieckmann	Austin	--	--	Part 4 PDF, Urge You Form Letters
446	Diedrich	Ted	--	--	Part 1 PDF, Crown Jewel Form Letters
512	Diedrich	Ted	--	--	Part 3 PDF, Public Part A
552	Diedrich	Ted	Access Director	Colorado Whitewater Association	Part 2 PDF, Organizations/Stakeholders Part A
2432	Dieterle	Elaine	--	--	Part 2 PDF, Online Petition Form Letters
2240	Dietrich	James	--	--	Part 2 PDF, Online Petition Form Letters
755	DiFrancesco	Robert	--	--	Part 1 PDF, Angling Community Form Letters
1766	DiLeo	Jim	NEPA Coordinator, Air Pollution Control Division	Colorado Department of Public Health and Environment	Part 4 PDF, State
30	Dillehay	Bob	--	--	Part 3 PDF, Public Part A
1946	Dillon	Robert	--	--	Part 2 PDF, Online Petition Form Letters
1437	Dils	Karen	--	--	Part 4 PDF, Urge You Modified Form Letters
2015	Dines	Bruce	--	--	Part 2 PDF, Online Petition Form Letters
440	Dines	Darren	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2558	Dines	Katherine	--	--	Part 2 PDF, Online Petition Form Letters
2481	Dines	Leslie	--	--	Part 2 PDF, Online Petition Form Letters
2528	Diogo	Mauricio	--	--	Part 2 PDF, Online Petition Form Letters
2407	Dirks	Dale	--	--	Part 2 PDF, Online Petition Form Letters
1205	Dixon	Court	--	--	Part 4 PDF, Urge You Form Letters
351	Doherty	Alex	--	--	Part 1 PDF, Angling Community Form Letters
1812	Doherty	Alex	--	--	Part 2 PDF, Online Petition Form Letters
463	Dolan	John P.	--	--	Part 3 PDF, Public Part A
2332	Dolbier	Ann	--	--	Part 2 PDF, Online Petition Form Letters
2329	Dolbier	Jim	--	--	Part 2 PDF, Online Petition Form Letters
1543	Dombrowski	Dave	--	--	Part 4 PDF, Urge You Modified Form Letters
779	Domenico	Cindy	Chair	Boulder County Board of County Commissioners	Part 1 PDF, Jurisdictions/Municipalities Part C
1333	Donizio	Robert	--	--	Part 4 PDF, Urge You Form Letters
2382	Donnermeyer	Shari	--	--	Part 2 PDF, Online Petition Form Letters
1147	Dormer	Sean	--	--	Part 1 PDF, Colorado Resident Form Letters
2403	Dornbusch	Brian	--	--	Part 2 PDF, Online Petition Form Letters
1338	Doucette	Richard	--	--	Part 4 PDF, Urge You Form Letters
144	Douglas	Ross	--	--	Part 1 PDF, Crown Jewel Form Letters
2543	Dowart	Joseph	--	--	Part 2 PDF, Online Petition Form Letters
2185	Dowell	Marge	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2480	Downing	Tricia	--	--	Part 2 PDF, Online Petition Form Letters
779	Doyle	Ben	Assistant Boulder County Attorney	Boulder County Board of County Commissioners	Part 1 PDF, Jurisdictions/Municipalities Part C
86	Doyle	Frank	--	--	Part 3 PDF, Public Part A
2149	Doyle	Sam	--	--	Part 2 PDF, Online Petition Form Letters
953	Doyle	Samuel C.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
374	Drabek	Larry	--	--	Part 1 PDF, Angling Community Form Letters
1903	Drake	Cindie	--	--	Part 2 PDF, Online Petition Form Letters
877	Drake	Paul	--	--	Part 1 PDF, Angling Community Form Letters
2076	Draper	Doug	--	--	Part 2 PDF, Online Petition Form Letters
393	Drengberg	Tyler	--	--	Part 1 PDF, Angling Community Form Letters
2597	Dresch	Danielle	--	--	Part 2 PDF, Online Petition Form Letters
2739	Dresen	Robin	--	--	Part 2 PDF, Online Petition Form Letters
113	Drevescraft	Jim	--	--	Part 3 PDF, Public Part A
333	Drew	Patrick	--	--	Part 1 PDF, Angling Community Form Letters
2317	Dubosky	Meg	--	--	Part 2 PDF, Online Petition Form Letters
1911	Ducharme	Sheila	--	--	Part 2 PDF, Online Petition Form Letters
2067	Ducreux	Philippe	--	--	Part 2 PDF, Online Petition Form Letters
1999	Duffy	BJ	--	--	Part 2 PDF, Online Petition Form Letters
2513	Dugwyler	Annette	--	--	Part 2 PDF, Online Petition Form Letters
2700	Duke	Deborah	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1337	Duke III	H. Benjamin	--	--	Part 4 PDF, Urge You Form Letters
1220	Dukes	Steve	--	--	Part 4 PDF, Urge You Form Letters
328	Dunkle	Doug	--	--	Part 1 PDF, Angling Community Form Letters
565	Dunkleberger	David	--	--	Part 1 PDF, Angling Community Form Letters
1343	Dunlap	W.	--	--	Part 4 PDF, Urge You Form Letters
1827	Dunn	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
727	Dunn	Karen	--	--	Part 3 PDF, Public Part A
1701	Dunshee	Donald G.	President and CEO	Broomfield Economic Development Corporation	Part 4 PDF, Strong Support Form Letters
2114	Durbin	DeAna	--	--	Part 2 PDF, Online Petition Form Letters
1692	Durbin	Jeffrey L.	Town Manager	Town of Fraser	Part 2 PDF, Jurisdictions/Municipalities Part E
189	Durian	Philip B.	--	--	Part 1 PDF, Angling Community Form Letters
1384	Durland	Robert	--	--	Part 4 PDF, Urge You Form Letters
470	Durlin	Thomas	--	--	Part 3 PDF, Public Part A
147	Dvorak	Bill	--	--	Part 1 PDF, Crown Jewel Form Letters
1020	Dvorak	Bill	--	--	Part 4 PDF, Urge You Form Letters
749	Dvorak	Neil	--	--	Part 1 PDF, Angling Community Form Letters
796	Easter	Mark	--	Save The Poudre, Poudre Waterkeepers	Part 2 PDF, Organizations/Stakeholders Part A
425	Eberhard	Mike	--	--	Part 3 PDF, Public Part A
321	Eberle	Jill	--	--	Part 3 PDF, Public Part A
258	Eberle	Sinjin	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1424	Eberle	Sinjin	--	--	Part 4 PDF, Urge You Modified Form Letters
1777	Eberle	Sinjin	--	--	Part 2 PDF, Online Petition Form Letters
85	Eck	Bob	--	--	Part 3 PDF, Public Part A
1590	Eckert	Steve	--	--	Part 4 PDF, Urge You Form Letters
304	Eckl	Rick	--	--	Part 1 PDF, Angling Community Form Letters
166	Edelen	John D.	--	--	Part 1 PDF, Angling Community Form Letters
954	Edelson	Rick	--	--	Part 3 PDF, Public Part B
2353	Edelson	Rick	--	--	Part 2 PDF, Online Petition Form Letters
2583	Edelstein	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2594	Edelstein	William	--	--	Part 2 PDF, Online Petition Form Letters
401	Edmonds	Joan	--	--	Part 1 PDF, Angling Community Form Letters
1262	Edmonds	Rod	--	--	Part 4 PDF, Urge You Form Letters
1785	Egdorf	Camille	--	--	Part 2 PDF, Online Petition Form Letters
111	Ehlen	John	--	--	Part 3 PDF, Public Part A
430	Ehlen	John	--	--	Part 3 PDF, Public Part A
2232	Ehlen	John	--	--	Part 2 PDF, Online Petition Form Letters
2508	Ehlert	Jeff	--	--	Part 2 PDF, Online Petition Form Letters
524	Ehles	John	--	--	Part 3 PDF, Public Part A
2681	Ehmann	Julie	--	--	Part 2 PDF, Online Petition Form Letters
1622	Eisenhand	Debra	--	--	Part 4 PDF, Public Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1622	Eisenhand	Vince	--	--	Part 4 PDF, Public Part D
1969	Elicker	Lucinda	--	--	Part 2 PDF, Online Petition Form Letters
860	Eller	Fred H.	--	--	Part 1 PDF, Angling Community Form Letters
281	Elliott	Bart	--	--	Part 1 PDF, Angling Community Form Letters
1861	Elliott	Joy	--	--	Part 2 PDF, Online Petition Form Letters
2000	Elliott	Karen	--	--	Part 2 PDF, Online Petition Form Letters
956	Ellis	Susan	--	--	Part 3 PDF, Public Part B
1462	Ellsworth	Jack	--	--	Part 4 PDF, Urge You Form Letters
1804	Elmore	Marrtin	--	--	Part 2 PDF, Online Petition Form Letters
743	Ely	John M.	County Attorney	Pitkin County Attorney's Office	Part 1 PDF, Jurisdictions/Municipalities Part A
906	Ely	John M.	County Attorney	Pitkin County Attorney's Office	Part 1 PDF, Jurisdictions/Municipalities Part C
2670	Ely	Stele	--	--	Part 2 PDF, Online Petition Form Letters
1557	Emery	Tim	--	--	Part 4 PDF, Urge You Modified Form Letters
277	Emery II	Roe	--	--	Part 1 PDF, Angling Community Form Letters
2780	Emigh	Rexanne	--	--	Part 2 PDF, Online Petition Form Letters
2117	Emmons	Rex	--	--	Part 2 PDF, Online Petition Form Letters
391	Emrich	Daniel	--	--	Part 1 PDF, Crown Jewel Form Letters
856	Emsing	Cullen	--	--	Part 1 PDF, Angling Community Form Letters
710	Engel	Heinz	--	--	Part 4 PDF, Save the Fraser River Form Letters
1529	Engel	Walter	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1003	Engle	Bill	--	--	Part 4 PDF, Urge You Form Letters
139	English	Rebecca	--	--	Part 1 PDF, Crown Jewel Form Letters
2732	Englund	Alicia	--	--	Part 2 PDF, Online Petition Form Letters
2071	Entz	Anita	--	--	Part 2 PDF, Online Petition Form Letters
1501	Erb	Lee	--	--	Part 4 PDF, Urge You Modified Form Letters
2758	Erickson	Linda	--	--	Part 2 PDF, Online Petition Form Letters
1252	Eriksen	Christopher	--	--	Part 4 PDF, Urge You Form Letters
1920	Erlandson	Mara	--	--	Part 2 PDF, Online Petition Form Letters
2100	Erwin	Debbie	--	--	Part 2 PDF, Online Petition Form Letters
2677	Erwin	John	--	--	Part 2 PDF, Online Petition Form Letters
2172	Espinosa	James	--	--	Part 2 PDF, Online Petition Form Letters
2754	Estenor	Dawn	--	--	Part 2 PDF, Online Petition Form Letters
1884	Etten	Steve	--	--	Part 2 PDF, Online Petition Form Letters
2361	Eubank	Cindy	--	--	Part 2 PDF, Online Petition Form Letters
2073	Evans	Helen	--	--	Part 2 PDF, Online Petition Form Letters
341	Evans	Leland E.	--	--	Part 1 PDF, Angling Community Form Letters
2626	Evans	Thom	--	--	Part 2 PDF, Online Petition Form Letters
1562	Eversoll	Don	--	--	Part 4 PDF, Urge You Form Letters
957	Ewers	Beverly	--	--	Part 3 PDF, Public Part B
1176	Fablet	Daniel	--	--	Part 1 PDF, Colorado Resident Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1367	Fagerness	Mark	--	--	Part 4 PDF, Urge You Form Letters
2143	Fanch	Bob	--	--	Part 2 PDF, Online Petition Form Letters
2366	Fanning	Kara	--	--	Part 2 PDF, Online Petition Form Letters
2136	Fanning	William	--	--	Part 2 PDF, Online Petition Form Letters
1295	Fant	Sally	--	--	Part 4 PDF, Urge You Form Letters
1801	Fantz	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
371	Farin	Larry	--	--	Part 1 PDF, Angling Community Form Letters
2156	Farkouh	Nicholas	--	--	Part 2 PDF, Online Petition Form Letters
228	Farling	Scott	--	--	Part 1 PDF, Angling Community Form Letters
191	Farrar	Gene	--	--	Part 1 PDF, Angling Community Form Letters
907	Farrell	Casey M.	--	--	Part 3 PDF, Public Part B
908	Farrell	Rhonda R.	--	--	Part 3 PDF, Public Part B
2635	Farris	David	--	--	Part 2 PDF, Online Petition Form Letters
968	Faurot	Leslie	--	--	Part 1 PDF, Gross Reservoir Form Letters
1093	Faurot	Leslie	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1110	Faurot	Leslie	--	--	Part 1 PDF, Boulder County Form Letters
424	Fay	Dede	--	--	Part 3 PDF, Public Part A
1947	Fay	Dede	--	--	Part 2 PDF, Online Petition Form Letters
1026	Fearn	Jerry	--	--	Part 4 PDF, Urge You Form Letters
257	Fehr	Todd	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1568	Fehr	Todd	--	--	Part 4 PDF, Urge You Modified Form Letters
1493	Feldman	Eli A.	Attorney	Porzak Browning and Bushong LLP on Behalf of Chimney Rock Ranch	Part 2 PDF, Organizations/Stakeholders Part B
1259	Feldman	William	--	--	Part 4 PDF, Urge You Form Letters
1623	Fenton	Royce	--	--	Part 2 PDF, Organizations/Stakeholders Part B
1492	Fentress	Dean	--	--	Part 4 PDF, Urge You Modified Form Letters
402	Ferguson	Roy	--	--	Part 1 PDF, Angling Community Form Letters
2613	Ferla	Guillermo	--	--	Part 2 PDF, Online Petition Form Letters
2063	Ferrari	Art	--	--	Part 2 PDF, Online Petition Form Letters
203	Festag	Keith	--	--	Part 1 PDF, Angling Community Form Letters
79	Field	Bruce	--	--	Part 3 PDF, Public Part A
410	Field	Bruce	--	--	Part 3 PDF, Public Part A
290	Fiester, Ph.D.	Thomas L.	--	--	Part 1 PDF, Angling Community Form Letters
2455	Filiatrault	Kamie	--	--	Part 2 PDF, Online Petition Form Letters
2359	Findley	Kip	--	--	Part 2 PDF, Online Petition Form Letters
2309	Findley	Stu	--	--	Part 2 PDF, Online Petition Form Letters
1014	Findley	Stuart	--	--	Part 4 PDF, Urge You Form Letters
2476	Fine	Robert	--	--	Part 2 PDF, Online Petition Form Letters
2536	Finn	Jaidee	--	--	Part 2 PDF, Online Petition Form Letters
631	Finnell	Bennett	--	--	Part 4 PDF, Save the Fraser River Form Letters

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Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2316	Finnman	Doug	--	--	Part 2 PDF, Online Petition Form Letters
1905	Fischer	Vickye	--	--	Part 2 PDF, Online Petition Form Letters
1625	Fisher	Amalia J.	--	--	Part 4 PDF, Public Part D
958	Fisher	Diane	--	--	Part 3 PDF, Public Part B
1624	Fisher	Kenneth J.	--	--	Part 4 PDF, Public Part D
2048	Fisher	Kenneth J.	--	--	Part 2 PDF, Online Petition Form Letters
1001	Fishpond	John Lecoq	--	--	Part 4 PDF, Urge You Form Letters
1183	Fitzgerald	Patrick	District Manager, Board of Directors	Southwest Metropolitan Water and Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
1241	Fitzgerald	Patrick	District Manager, Board of Directors	Platte Canyon Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
1702	Fix, P.E.	Barney J.	--	--	Part 4 PDF, Strong Support Form Letters
1991	Flaherty	Tim	--	--	Part 2 PDF, Online Petition Form Letters
2781	Fleming	Kathy	--	--	Part 2 PDF, Online Petition Form Letters
1882	Floyd	A. Warren	--	--	Part 2 PDF, Online Petition Form Letters
1258	Flynn	James	--	--	Part 4 PDF, Urge You Form Letters
2720	Flynn	Jerry	--	--	Part 2 PDF, Online Petition Form Letters
2720	Flynn	Marilyn	--	--	Part 2 PDF, Online Petition Form Letters
729	Flynn	Timothy J.	--	Collins Cockrel & Cole	Part 1 PDF, Jurisdictions/Municipalities Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2821	Flynn	Timothy J.	--	Collins Cockrel & Cole on Behalf of the Cherry Creek Village Water District and the Holly Hills Water Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
546	Fogg	Peter	County Commissioner	Boulder County, Land Use Department	Part 1 PDF, Jurisdictions/Municipalities Part A
72	Folger-Baker, MLA	Martha	--	--	Part 3 PDF, Public Part A
585	Fontanez	Chris	--	--	Part 1 PDF, Angling Community Form Letters
447	Foster	Bill	--	--	Part 1 PDF, Angling Community Form Letters
447	Foster	Elizabeth	--	--	Part 1 PDF, Angling Community Form Letters
1067	Foster	James	--	--	Part 1 PDF, Angling Community Form Letters
2097	Foster	Tracy	--	--	Part 2 PDF, Online Petition Form Letters
1546	Fothergill	Paula	--	--	Part 4 PDF, Urge You Modified Form Letters
2345	Fountain	Abby	--	--	Part 2 PDF, Online Petition Form Letters
2668	Fournier	Charmian	--	--	Part 2 PDF, Online Petition Form Letters
2814	Fournier	Michelle	--	--	Part 2 PDF, Online Petition Form Letters
2427	Fowler	David	--	--	Part 2 PDF, Online Petition Form Letters
987	Fowler	Larry	--	--	Part 2 PDF, Not Adequately Form Letters
2255	Fowler	Lee	--	--	Part 2 PDF, Online Petition Form Letters
1132	Fowler	Melissa	--	--	Part 1 PDF, Colorado Resident Form Letters
1988	Fox	Amy	--	--	Part 2 PDF, Online Petition Form Letters
2463	Frame	Ann	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1237	France	Eric	--	--	Part 4 PDF, Urge You Form Letters
1290	Fransen	Von	--	--	Part 4 PDF, Urge You Form Letters
2446	Frasier	Damion	--	--	Part 2 PDF, Online Petition Form Letters
223	Fraunfelder	Robert	--	--	Part 1 PDF, Angling Community Form Letters
2257	Frayne	Kimberly	--	--	Part 2 PDF, Online Petition Form Letters
444	Frazee	John P.	--	--	Part 1 PDF, Angling Community Form Letters
2715	Freeman	Becky	--	--	Part 2 PDF, Online Petition Form Letters
2614	Freeman	Jan	--	--	Part 2 PDF, Online Petition Form Letters
2608	Freeman	William	--	--	Part 2 PDF, Online Petition Form Letters
506	French	Bob	County Commissioner	Summit County	Part 1 PDF, Jurisdictions/Municipalities Part A
273	Frevert	Eric	--	--	Part 1 PDF, Angling Community Form Letters
2342	Frey	Kathy	--	--	Part 2 PDF, Online Petition Form Letters
759	Fricke	Randy	--	--	Part 2 PDF, Organizations/Stakeholders Part A
911	Frie	Robert G.	Mayor	City of Arvada	Part 2 PDF, Jurisdictions/Municipalities Part D
2323	Friedman	Ariel	--	--	Part 2 PDF, Online Petition Form Letters
2656	Friesen	Bev	--	--	Part 2 PDF, Online Petition Form Letters
1145	Fritts-Penniman	Shannon	--	--	Part 1 PDF, Colorado Resident Form Letters
1405	Fullerton	Ernest	--	--	Part 4 PDF, Urge You Modified Form Letters
155	Funk	Alan	--	--	Part 3 PDF, Public Part A
1835	Fuqua	Keith	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2296	Fuqua	Nichole	--	--	Part 2 PDF, Online Petition Form Letters
1482	Furimsky	Ben	--	--	Part 4 PDF, Urge You Form Letters
1344	Gabreski	Ted	--	--	Part 4 PDF, Urge You Form Letters
617	Gabriele	John	--	--	Part 1 PDF, Angling Community Form Letters
2581	Gach	Peter	--	--	Part 2 PDF, Online Petition Form Letters
891	Gaddis	Larry	--	--	Part 1 PDF, Angling Community Form Letters
2796	Gager Glick	Holly	--	--	Part 2 PDF, Online Petition Form Letters
959	Gagnon	Karissa	--	--	Part 3 PDF, Public Part B
2037	Gagnon	Karissa	--	--	Part 2 PDF, Online Petition Form Letters
959	Gagnon	Tim	--	--	Part 3 PDF, Public Part B
843	Galbraith	Colin	--	--	Part 4 PDF, Save the Fraser River Form Letters
1577	Gale	John	--	--	Part 4 PDF, Urge You Form Letters
237	Gale	John W.	--	--	Part 1 PDF, Angling Community Form Letters
1975	Galioto	Bill	--	--	Part 2 PDF, Online Petition Form Letters
590	Gallagher	Sean R.	--	--	Part 1 PDF, Angling Community Form Letters
1626	Gallegos	Jane	--	--	Part 4 PDF, Public Part D
1737	Gallegos	Jane	--	--	Part 4 PDF, Public Part E
1626	Gallegos	John	--	--	Part 4 PDF, Public Part D
1736	Gallegos	John	--	--	Part 4 PDF, Public Part E
912	Gallivan	Michael T.	President	Coal Creek Canyon Fire Protection District	Part 2 PDF, Jurisdictions/Municipalities Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1754	Gallo	Joe	--	--	Part 1 PDF, Angling Community Form Letters
142	Galloway	Karen	--	--	Part 1 PDF, Crown Jewel Form Letters
1792	Gamache	Phil	--	--	Part 2 PDF, Online Petition Form Letters
1479	Gamble	John	--	--	Part 4 PDF, Urge You Modified Form Letters
1473	Gamble	Nelda	--	--	Part 4 PDF, Urge You Modified Form Letters
1941	Garamella	David	--	--	Part 2 PDF, Online Petition Form Letters
1451	Garbo	Stephanie	--	--	Part 4 PDF, Urge You Modified Form Letters
2652	Gardner	William	--	--	Part 2 PDF, Online Petition Form Letters
2692	Gardonyi	Gabor	--	--	Part 2 PDF, Online Petition Form Letters
2282	Garfield	Trever	--	--	Part 2 PDF, Online Petition Form Letters
208	Garner	Michael	--	--	Part 1 PDF, Angling Community Form Letters
2592	Garnsey	Georgia	--	--	Part 2 PDF, Online Petition Form Letters
2511	Garrett	Tanya	--	--	Part 2 PDF, Online Petition Form Letters
2344	Garson	Allison	--	--	Part 2 PDF, Online Petition Form Letters
1581	Gary	Jack	--	--	Part 4 PDF, Urge You Form Letters
377	Gaskins	Mary Anne	--	--	Part 1 PDF, Crown Jewel Form Letters
400	Geiger	Gerald	--	--	Part 1 PDF, Angling Community Form Letters
2619	Geiser	Leslie	--	--	Part 2 PDF, Online Petition Form Letters
2722	Geiser	Sandra	--	--	Part 2 PDF, Online Petition Form Letters
2200	Georgas	Alex	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1274	George	Carrie	Director	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
557	Gerhart	Paul	--	--	Part 3 PDF, Public Part A
557	Gerhart	Suzanne	--	--	Part 3 PDF, Public Part A
2499	Gerstein	Jack	--	--	Part 2 PDF, Online Petition Form Letters
1342	Gesnik	Joel	--	--	Part 4 PDF, Urge You Form Letters
1704	Gett	Howard	Chairman	Metro North Chamber of Commerce	Part 4 PDF, Strong Support Form Letters
414	Getz	Bob	--	--	Part 3 PDF, Public Part A
429	Getz	Bob	--	--	Part 3 PDF, Public Part A
2018	Getz	Bob	--	--	Part 2 PDF, Online Petition Form Letters
1767	Ghidossi	Patrick	--	--	Part 4 PDF, Public Part E
1480	Ghidossi	Thomas	--	--	Part 4 PDF, Urge You Form Letters
361	Ghidossi	Thomas A.	--	--	Part 1 PDF, Angling Community Form Letters
2564	Giacomini	Janice	--	--	Part 2 PDF, Online Petition Form Letters
2791	Giacomini	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
303	Giallela	Gary	--	--	Part 1 PDF, Angling Community Form Letters
2637	Giannitsi	Stellina	--	--	Part 2 PDF, Online Petition Form Letters
2358	Giardiello	Joe	--	--	Part 2 PDF, Online Petition Form Letters
57	Gibbons	Peter	--	--	Part 3 PDF, Public Part A
761	Gibbs	Barbara	--	--	Part 3 PDF, Public Part B
2256	Giberson	Melissa	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1261	Gibford	Richard	--	--	Part 4 PDF, Urge You Form Letters
156	Gibson	Jeff	--	--	Part 3 PDF, Public Part A
183	Gibson	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
298	Gibson	Jim	--	--	Part 1 PDF, Angling Community Form Letters
2121	Gibson	Kris	--	--	Part 2 PDF, Online Petition Form Letters
382	Giese	Bruce D.	--	--	Part 1 PDF, Angling Community Form Letters
2724	Giesie	Rebecca	--	--	Part 2 PDF, Online Petition Form Letters
1705	Giffin	John E.	--	--	Part 2 PDF, Protest Family Form Letters
2512	Gilbert	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
2494	Gilkey	Rhonda	--	--	Part 2 PDF, Online Petition Form Letters
1876	Gill	Sharon	--	--	Part 2 PDF, Online Petition Form Letters
2161	Gillis	Ken	--	--	Part 2 PDF, Online Petition Form Letters
729	Gillis	Roberta F.	Secretary	South-East Englewood Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
1274	Ginsberg	Annie	President Elect	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
2617	Girard	Glen	--	--	Part 2 PDF, Online Petition Form Letters
2112	Glavin	Betsy	--	--	Part 2 PDF, Online Petition Form Letters
484	Glazer	Steve	--	Rocky Mountain Chapter of the Sierra Club	Part 2 PDF, Organizations/Stakeholders Part A
485	Glazer	Steve	--	Rocky Mountain Chapter of the Sierra Club	Part 2 PDF, Organizations/Stakeholders Part A
571	Glazer	Steve	--	Sierra Club, Rocky Mountain Chapter	Part 2 PDF, Organizations/Stakeholders Part A

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Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
796	Glazer	Steve	Water and Aquatic Resources Committee, Chair	Sierra Club, Rocky Mountain Chapter	Part 2 PDF, Organizations/Stakeholders Part A
1520	Glomb	Tim	--	--	Part 4 PDF, Urge You Modified Form Letters
1586	Goad	Jack	--	--	Part 4 PDF, Urge You Form Letters
216	Goad	John G.	--	--	Part 1 PDF, Angling Community Form Letters
2180	Godbey	Patty	--	--	Part 2 PDF, Online Petition Form Letters
167	Godden	Gary W.	--	--	Part 1 PDF, Angling Community Form Letters
278	Godsey	Mark	--	--	Part 1 PDF, Angling Community Form Letters
2483	Godwin	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
230	Goff	Rebecca	--	--	Part 1 PDF, Angling Community Form Letters
1511	Goin	Lynn T.	--	--	Part 4 PDF, Urge You Modified Form Letters
82	Goldan, PhD	Paul D.	--	--	Part 3 PDF, Public Part A
232	Gonnion	Dave	--	--	Part 1 PDF, Angling Community Form Letters
2327	Good	James	--	--	Part 2 PDF, Online Petition Form Letters
427	Goodrum	Steve	--	--	Part 3 PDF, Public Part A
1565	Goodrum	Steven	--	--	Part 4 PDF, Urge You Form Letters
892	Gordon	John	--	--	Part 1 PDF, Angling Community Form Letters
1166	Gordon	Nancy M.	--	--	Part 2 PDF, Not Adequately Form Letters
724	Gordon, PhD, P.E.	Allen	--	--	Part 3 PDF, Public Part A
292	Gossage	Tim	--	--	Part 1 PDF, Angling Community Form Letters

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Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2168	Gotto	Robert	--	--	Part 2 PDF, Online Petition Form Letters
343	Grace	Eben D.	--	--	Part 1 PDF, Angling Community Form Letters
1972	Grandinetti	Connie	--	--	Part 2 PDF, Online Petition Form Letters
2101	Grant	Joan	--	--	Part 2 PDF, Online Petition Form Letters
2468	Grasch	Adam	--	--	Part 2 PDF, Online Petition Form Letters
2672	Graves	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
1430	Graves, M.D.	John	--	--	Part 4 PDF, Urge You Form Letters
205	Gray	William	--	--	Part 1 PDF, Angling Community Form Letters
78	Grayson	Alicia	--	--	Part 3 PDF, Public Part A
2538	Grayson	Jon	--	--	Part 2 PDF, Online Petition Form Letters
2233	Green	Arnie	--	--	Part 2 PDF, Online Petition Form Letters
910	Green	Barbara J.B.	--	SullivanGreenSeavy LLC for the Board of County Commissioners of Grand County	Part 2 PDF, Jurisdictions/Municipalities Part D
2819	Green	Barbara J.B.	--	SullivanGreenSeavy LLC for the Board of County Commissioners of Grand County	Part 2 PDF, Jurisdictions/Municipalities Part E
1825	Green	Heather	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1232	Green	Judith	--	The Environmental Group of Coal Creek Canyon, on its Own Behalf and that of Coal Creek Canyon Improvement Association, Friends of the Foothills, and Concerned Citizens of the Gross Reservoir Community	Part 2 PDF, Organizations/Stakeholders Part B
754	Greenland	Christin	--	--	Part 3 PDF, Public Part B
2385	Greenlaw	Tim	--	--	Part 2 PDF, Online Petition Form Letters
2275	Gretz	Dan	--	--	Part 2 PDF, Online Petition Form Letters
1178	Griffin	Faye	--	Jefferson County	Part 2 PDF, Jurisdictions/Municipalities Part E
2639	Griffin	Laurie	--	--	Part 2 PDF, Online Petition Form Letters
2089	Grindon	Joseph	--	--	Part 2 PDF, Online Petition Form Letters
340	Gritschke	Elisabeth	--	--	Part 1 PDF, Angling Community Form Letters
969	Gritz	James	--	--	Part 1 PDF, Gross Reservoir Form Letters
1094	Gritz	James	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1102	Gritz	James	--	--	Part 1 PDF, Boulder County Form Letters
1706	Gritz	James	--	--	Part 4 PDF, Public Part E
970	Gritz	Kathleen	--	--	Part 1 PDF, Gross Reservoir Form Letters
1706	Gritz	Kathleen	--	--	Part 4 PDF, Public Part E
1095	Gritz	Kathy	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
887	Gross	Andy	--	--	Part 1 PDF, Angling Community Form Letters

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Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
872	Grosshans	Charles	--	--	Part 1 PDF, Angling Community Form Letters
1908	Groswold	Mary Ann	--	--	Part 2 PDF, Online Petition Form Letters
1967	Groswold	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
1272	Grout	James	--	--	Part 4 PDF, Urge You Form Letters
1308	Gudat	Dennis	--	--	Part 4 PDF, Urge You Form Letters
1308	Gudat	Mrs. Dennis	--	--	Part 4 PDF, Urge You Form Letters
1401	Gudinas	James	--	--	Part 4 PDF, Urge You Form Letters
1707	Guenthner	Timothy J.	--	--	Part 4 PDF, Public Part E
56	Guilfoyle	Bill	--	--	Part 3 PDF, Public Part A
2510	Gunn	Gregory	--	--	Part 2 PDF, Online Petition Form Letters
75	Gustafson	Gary	--	--	Part 3 PDF, Public Part A
1925	Gutersohn	Lance	--	--	Part 2 PDF, Online Petition Form Letters
2406	Guthrie	Carrie	--	--	Part 2 PDF, Online Petition Form Letters
2204	Gutierrez	Brandi	--	--	Part 2 PDF, Online Petition Form Letters
1422	Gwin	Shane	--	--	Part 4 PDF, Urge You Modified Form Letters
634	H.	T.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2230	Hackerson	Shelly	--	--	Part 2 PDF, Online Petition Form Letters
2706	Hadley	Jonas	--	--	Part 2 PDF, Online Petition Form Letters
976	Hagar	Laura	--	--	Part 3 PDF, Public Part B
2745	Hagar	Laura	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
466	Hagar	Laura M.	--	--	Part 1 PDF, Angling Community Form Letters
2774	Hager	Marc	--	--	Part 2 PDF, Online Petition Form Letters
437	Hague	William	--	--	Part 1 PDF, Angling Community Form Letters
2650	Haith	Marshall M.	--	--	Part 2 PDF, Online Petition Form Letters
2579	Haith	Sue	--	--	Part 2 PDF, Online Petition Form Letters
1902	Hajicek	David	--	--	Part 2 PDF, Online Petition Form Letters
2183	Hake	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
1506	Hale	Cody	--	--	Part 4 PDF, Urge You Modified Form Letters
453	Hale	Shane	Town Manager	Town of Grand Lake	Part 1 PDF, Jurisdictions/Municipalities Part A
1627	Hall	Dennis	--	--	Part 4 PDF, Public Part D
706	Hall	John R.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1627	Hall	Kristene	--	--	Part 4 PDF, Public Part D
772	Hamel	Bob	Chairman	Colorado River Outfitters Association	Part 2 PDF, Organizations/Stakeholders Part A
1326	Hamel	Robert	--	--	Part 4 PDF, Urge You Form Letters
2530	Hamilton	Amelia	--	--	Part 2 PDF, Online Petition Form Letters
2531	Hamilton	Derrick	--	--	Part 2 PDF, Online Petition Form Letters
38	Hamman	Barbara	--	--	Part 3 PDF, Public Part A
38	Hamman	Dick	--	--	Part 3 PDF, Public Part A
352	Hammel	Bonnie M.	--	--	Part 2 PDF, Not Adequately Form Letters
822	Hammel	Rick	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
991	Hammond	Gary M.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
977	Hammond	Grace H.	--	--	Part 3 PDF, Public Part B
989	Hammond	Scott	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2577	Handelsman	Rebecca	--	--	Part 2 PDF, Online Petition Form Letters
798	Handyside	Perry	Ranch Manager, on Behalf of Galloway, Inc. (Owner of Blue Valley Ranch)	Blue Valley Ranch	Part 2 PDF, Organizations/Stakeholders Part A
794	Hankal	Matthew	--	--	Part 3 PDF, Public Part B
409	Hanke	M.	--	--	Part 1 PDF, Angling Community Form Letters
1708	Hankins	Helen M.	State Director	United States Department of the Interior, Bureau of Land Management, Colorado State Office	Part 1 PDF, Federal
1177	Hansen	Bambi	--	--	Part 4 PDF, Public Part C
1755	Hansen	Hannah	--	--	Part 1 PDF, Angling Community Form Letters
1061	Hansen	Paul	--	--	Part 1 PDF, Angling Community Form Letters
80	Hansen, J.D., AICP	Roger P.	--	--	Part 3 PDF, Public Part A
2321	Hanson	Mark	--	--	Part 2 PDF, Online Petition Form Letters
2007	Hardardt	William	--	--	Part 2 PDF, Online Petition Form Letters
1855	Harding	Kelvin	--	--	Part 2 PDF, Online Petition Form Letters
1013	Hardy	Matthew Bourke	--	--	Part 4 PDF, Urge You Form Letters
2226	Harms	Deana	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1628	Harper	Judson M.	--	--	Part 4 PDF, Public Part D
74	Harris	Catharine	--	--	Part 3 PDF, Public Part A
1826	Harris	David E.	--	--	Part 2 PDF, Online Petition Form Letters
2372	Harris	Jenny	--	--	Part 2 PDF, Online Petition Form Letters
2069	Harris	Jerry	--	--	Part 2 PDF, Online Petition Form Letters
239	Harris	Seth	--	--	Part 1 PDF, Angling Community Form Letters
2752	Harrison	Holly	--	--	Part 2 PDF, Online Petition Form Letters
2450	Harrison	Summer	--	--	Part 2 PDF, Online Petition Form Letters
1709	Hartkopf	Dave	District Manager	Green Mountain Water and Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
1178	Hartman	Kathy	Chairman	Jefferson County	Part 2 PDF, Jurisdictions/Municipalities Part E
2152	Hartmann	T.	--	--	Part 2 PDF, Online Petition Form Letters
2096	Hartnett	Benner	--	--	Part 2 PDF, Online Petition Form Letters
2764	Hartsog	Carolyn	--	--	Part 2 PDF, Online Petition Form Letters
1710	Harvey	Bradley H.	--	--	Part 4 PDF, Strong Support Form Letters
1407	Haskell	Blaine	--	--	Part 4 PDF, Urge You Modified Form Letters
1129	Hasselbacher	Lauren	--	--	Part 1 PDF, Colorado Resident Form Letters
1063	Hassinger	Gil	--	--	Part 1 PDF, Angling Community Form Letters
319	Hastings	Joshua S.	--	--	Part 1 PDF, Angling Community Form Letters
318	Hatfield	Wendell	--	--	Part 1 PDF, Angling Community Form Letters
2485	Hattenbach	Linda	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2371	Haucke	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
195	Havlick	Ian	--	--	Part 1 PDF, Angling Community Form Letters
723	Hawkins Robinson	Elizabeth	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2213	Hawkinson	Jerry	--	--	Part 2 PDF, Online Petition Form Letters
310	Hayes	Sharon	--	--	Part 1 PDF, Angling Community Form Letters
310	Hayes	Stan	--	--	Part 1 PDF, Angling Community Form Letters
2578	Healey	Gretchen	--	--	Part 2 PDF, Online Petition Form Letters
2642	Heard	Katie	--	--	Part 2 PDF, Online Petition Form Letters
1629	Heckman	Ann	--	--	Part 4 PDF, Public Part D
1629	Heckman	Brian	--	--	Part 4 PDF, Public Part D
136	Hedberg	Kim	--	--	Part 1 PDF, Crown Jewel Form Letters
1965	Hedgecock	Laurie	--	--	Part 2 PDF, Online Petition Form Letters
1496	Hedlund	Roger	--	--	Part 4 PDF, Urge You Form Letters
2095	Hedrick	Marie	--	--	Part 2 PDF, Online Petition Form Letters
2620	Heffington	Victoria	--	--	Part 2 PDF, Online Petition Form Letters
1033	Heggy	Patrick C.	--	--	Part 3 PDF, Public Part B
2750	Hegstrom	Christy	--	--	Part 2 PDF, Online Petition Form Letters
2357	Heighberger	Holly	--	--	Part 2 PDF, Online Petition Form Letters
2234	Heimos	Bob	--	--	Part 2 PDF, Online Petition Form Letters
657	Heiner	Kris	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
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Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1474	Heins	Charlene	--	--	Part 4 PDF, Urge You Form Letters
1959	Heinze	Dan	--	--	Part 2 PDF, Online Petition Form Letters
311	Heirigs	Mark	--	--	Part 1 PDF, Angling Community Form Letters
2033	Heitkamp	Daniel	--	--	Part 2 PDF, Online Petition Form Letters
1974	Heitkamp	Richard	--	--	Part 2 PDF, Online Petition Form Letters
562	Held-Warmkessel	Jeanne	--	--	Part 1 PDF, Angling Community Form Letters
1787	Helsley	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
2150	Hendershott	Danny	--	--	Part 2 PDF, Online Petition Form Letters
2182	Hendershott	Melaine	--	--	Part 2 PDF, Online Petition Form Letters
683	Hennessey	D.	--	--	Part 4 PDF, Save the Fraser River Form Letters
663	Hennessy	Richard	--	--	Part 4 PDF, Save the Fraser River Form Letters
2772	Hennesy	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
721	Henry	Kathy Chandler	President	Eagle River Watershed Council, Inc.	Part 2 PDF, Organizations/Stakeholders Part A
7	Henry	Kendall	--	--	Part 3 PDF, Public Part A
369	Henry	Kendall	--	--	Part 1 PDF, Angling Community Form Letters
2387	Henry	Molly	--	--	Part 2 PDF, Online Petition Form Letters
2088	Henry	Seth	--	--	Part 2 PDF, Online Petition Form Letters
1292	Hensley	Lee	--	--	Part 4 PDF, Urge You Form Letters
260	Herbert	Bruce	--	--	Part 1 PDF, Angling Community Form Letters
1572	Hering	Lauren	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2503	Hernandez	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
1756	Hernden	Dave	--	--	Part 1 PDF, Angling Community Form Letters
2216	Herndon	Laura	--	--	Part 2 PDF, Online Petition Form Letters
2540	Heroux	Thad	--	--	Part 2 PDF, Online Petition Form Letters
2396	Hert	Ron	--	--	Part 2 PDF, Online Petition Form Letters
599	Hertz	Marcia	--	--	Part 1 PDF, Angling Community Form Letters
641	Hetzler	Bryon	--	--	Part 4 PDF, Save the Fraser River Form Letters
2691	Heuerman	Kathy	--	--	Part 2 PDF, Online Petition Form Letters
405	Hibberd	James David	--	--	Part 1 PDF, Angling Community Form Letters
152	Hickenlooper	Laurie	--	--	Part 1 PDF, Crown Jewel Form Letters
1823	Hickox	Janet	--	--	Part 2 PDF, Online Petition Form Letters
2803	Hill	Ann	--	--	Part 2 PDF, Online Petition Form Letters
2404	Hill	Chris	--	--	Part 2 PDF, Online Petition Form Letters
221	Hill	Richard	--	--	Part 1 PDF, Angling Community Form Letters
785	Hill	Teresa	--	--	Part 4 PDF, Save the Fraser River Form Letters
2051	Hill	Teresa	--	--	Part 2 PDF, Online Petition Form Letters
131	Hill	Todd	--	--	Part 1 PDF, Crown Jewel Form Letters
2104	Hilton	Bradley	--	--	Part 2 PDF, Online Petition Form Letters
715	Hilty	Jill	--	--	Part 3 PDF, Public Part A
539	Hites	Sylvia	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1034	Hites	Sylvia	--	--	Part 3 PDF, Public Part B
2177	Hites	Sylvia	--	--	Part 2 PDF, Online Petition Form Letters
360	Hoban	Sean	--	--	Part 1 PDF, Angling Community Form Letters
1058	Hobbs	Michael S.	--	--	Part 1 PDF, Angling Community Form Letters
1539	Hobbs	Mike	--	--	Part 4 PDF, Urge You Modified Form Letters
903	Hock	Stephen	--	--	Part 1 PDF, Angling Community Form Letters
1362	Hock	Stephen	--	--	Part 4 PDF, Urge You Form Letters
1144	Hodge	Joseph Cabell	--	--	Part 1 PDF, Colorado Resident Form Letters
2820	Hodgson	Kathleen E.	City Manager	City of Lakewood	Part 2 PDF, Jurisdictions/Municipalities Part E
526	Hodsdon	Tim	--	--	Part 3 PDF, Public Part A
1465	Hodsdon	Timothy	--	--	Part 4 PDF, Public Part D
2253	Hoeg Hagen	Emilie	--	--	Part 2 PDF, Online Petition Form Letters
1387	Hoenninger	Ron	--	--	Part 4 PDF, Urge You Form Letters
913	Hoese	Cheryl	President	Grand County Colorado Tourism Board	Part 2 PDF, Jurisdictions/Municipalities Part D
2173	Hofsetz	Brendon	--	--	Part 2 PDF, Online Petition Form Letters
2166	Hofsetz	Therron	--	--	Part 2 PDF, Online Petition Form Letters
10	Hogan	Dan	--	--	Part 3 PDF, Public Part A
1397	Hogan	J.	--	--	Part 4 PDF, Urge You Form Letters
1932	Hogan	James	--	--	Part 2 PDF, Online Petition Form Letters
19	Hogan	Karen	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
9	Hogan	Marianne	--	--	Part 3 PDF, Public Part A
19	Hogan	Mike	--	--	Part 3 PDF, Public Part A
9	Hogan	Patrick	--	--	Part 3 PDF, Public Part A
477	Holahan	Michael	--	--	Part 3 PDF, Public Part A
845	Holden	Traci	--	--	Part 4 PDF, Save the Fraser River Form Letters
729	Holland	Diana S.	Vice President	South-East Englewood Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
2040	Holland	Walter	--	--	Part 2 PDF, Online Petition Form Letters
2324	Holleb	Josh	--	--	Part 2 PDF, Online Petition Form Letters
1493	Holleman	Fritz	Attorney	Porzak Browning and Bushong LLP on Behalf of Chimney Rock Ranch	Part 2 PDF, Organizations/Stakeholders Part B
571	Holleman	Paul	--	Chimney Rock Ranch	Part 2 PDF, Organizations/Stakeholders Part A
579	Hollinger	Nancy	Board of Directors	Coal Creek Canyon Park & Recreation District	Part 1 PDF, Jurisdictions/Municipalities Part A
1757	Holloway	Heather	--	--	Part 1 PDF, Angling Community Form Letters
185	Hollrah	Paul	--	--	Part 3 PDF, Public Part A
14	Holmberg	Steve	--	--	Part 3 PDF, Public Part A
737	Holmberg	Steve	--	--	Part 3 PDF, Public Part A
2241	Holmes	Donald	--	--	Part 2 PDF, Online Petition Form Letters
126	Holsinger	David	--	Homestead Hills Homeowner's Association	Part 2 PDF, Organizations/Stakeholders Part A
2699	Holsinger	David	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
983	Holub	Barbara	--	--	Part 2 PDF, Not Adequately Form Letters
982	Holub	Donald P.	--	--	Part 2 PDF, Not Adequately Form Letters
784	Holwick	Scott E.	Attorney	Lyons Gaddis Kahn & Hall, PC, on Behalf of the Water Users Association of District No. 6	Part 2 PDF, Organizations/Stakeholders Part A
2274	Holzwarth	Todd	--	--	Part 2 PDF, Online Petition Form Letters
1994	Holzworth-Moore	Carol	--	--	Part 2 PDF, Online Petition Form Letters
794	Homsher	Quill	--	--	Part 3 PDF, Public Part B
794	Homsher	Steve	--	--	Part 3 PDF, Public Part B
2147	Hood	Greg	--	--	Part 2 PDF, Online Petition Form Letters
2640	Hooks	Dorothy	--	--	Part 2 PDF, Online Petition Form Letters
181	Hooley	Rick	--	--	Part 1 PDF, Angling Community Form Letters
1510	Hoovew	James	--	--	Part 4 PDF, Urge You Modified Form Letters
2506	Horan	Ellen	--	--	Part 2 PDF, Online Petition Form Letters
1364	Horan	Emily	--	--	Part 4 PDF, Urge You Form Letters
2377	Horan	Emily	--	--	Part 2 PDF, Online Petition Form Letters
2383	Horan	Joe	--	--	Part 2 PDF, Online Petition Form Letters
129	Horn	Charlie	--	--	Part 1 PDF, Crown Jewel Form Letters
234	Horn	Charlie	--	--	Part 1 PDF, Angling Community Form Letters
439	Horsfield, CPA	Gregory H.	--	--	Part 1 PDF, Angling Community Form Letters
2627	Hoskins	Brian	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1525	Hostelter	Mike	--	--	Part 4 PDF, Urge You Modified Form Letters
2730	Hovey	Layne	--	--	Part 2 PDF, Online Petition Form Letters
1504	Howard	Chuck	--	--	Part 4 PDF, Urge You Modified Form Letters
2477	Howard	Damon	--	--	Part 2 PDF, Online Petition Form Letters
2409	Howe	Dorothy	--	--	Part 2 PDF, Online Petition Form Letters
1842	Howell	Diane	--	--	Part 2 PDF, Online Petition Form Letters
1368	Howell	R.T. (Robert Tremain)	--	--	Part 4 PDF, Urge You Form Letters
1499	Hoyt	Jim	--	--	Part 4 PDF, Urge You Form Letters
2160	Huff	Donna	--	--	Part 2 PDF, Online Petition Form Letters
612	Huggins	Ryan	--	--	Part 1 PDF, Angling Community Form Letters
2566	Hughes	Byron	--	--	Part 2 PDF, Online Petition Form Letters
2386	Hughes	Jancie	--	--	Part 2 PDF, Online Petition Form Letters
619	Hughes	Janice	--	--	Part 3 PDF, Public Part A
786	Hughes	Janice B.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2676	Hughes	Julee	--	--	Part 2 PDF, Online Petition Form Letters
720	Hughes	Kent	--	--	Part 3 PDF, Public Part A
1213	Hult	Dennis	--	--	Part 4 PDF, Urge You Form Letters
880	Hunt	Tom	--	--	Part 1 PDF, Angling Community Form Letters
894	Hunter	Jack	--	--	Part 1 PDF, Angling Community Form Letters
1037	Hunter	Merilyn	--	--	Part 3 PDF, Public Part B

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
279	Hus	Richard	--	--	Part 1 PDF, Angling Community Form Letters
643	Huseboe	Bryan	--	--	Part 4 PDF, Save the Fraser River Form Letters
2398	Huseboe	Bryan	--	--	Part 2 PDF, Online Petition Form Letters
778	Huster	Stuart S.	--	--	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
2771	Huston	Marie	--	--	Part 2 PDF, Online Petition Form Letters
647	Hut	Martha	--	--	Part 4 PDF, Save the Fraser River Form Letters
1768	Hutchins	Bruce	District Manager	Grand County Water & Sanitation District #1	Part 2 PDF, Jurisdictions/Municipalities Part E
567	Hutchinson	Duane	--	--	Part 1 PDF, Angling Community Form Letters
1231	Hutchinson	Duane	--	--	Part 4 PDF, Urge You Form Letters
2374	Hutchinson	Scott	--	--	Part 2 PDF, Online Petition Form Letters
2445	Hutgren	Todd	--	--	Part 2 PDF, Online Petition Form Letters
12	Huyler	Alice	--	--	Part 3 PDF, Public Part A
2061	Hyer	Susie	--	--	Part 2 PDF, Online Petition Form Letters
308	Hylden	Mikkel	--	--	Part 1 PDF, Angling Community Form Letters
1799	Ibarra	Christen	--	--	Part 2 PDF, Online Petition Form Letters
792	Idema	Jim	President	South Platte Enhancement Board	Part 1 PDF, Jurisdictions/Municipalities Part C
2244	Ikler	Bill	--	--	Part 2 PDF, Online Petition Form Letters
671	illegible	Dirk	--	--	Part 4 PDF, Save the Fraser River Form Letters
1260	illegible	Heidi	--	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #2 Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
633	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
644	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
659	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
665	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
690	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
842	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
850	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
851	illegible	illegible	--	--	Part 4 PDF, Save the Fraser River Form Letters
862	illegible	illegible	--	--	Part 1 PDF, Angling Community Form Letters
879	illegible	illegible	--	--	Part 1 PDF, Angling Community Form Letters
900	illegible	illegible	--	--	Part 1 PDF, Angling Community Form Letters
1119	illegible	illegible	--	--	Part 4 PDF, Strong Support Form Letters
1123	illegible	illegible	--	--	Part 1 PDF, Colorado Resident Form Letters
1141	illegible	illegible	--	--	Part 1 PDF, Colorado Resident Form Letters
1423	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
1445	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
1472	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
1522	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
1527	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
1528	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1550	illegible	illegible	--	--	Part 4 PDF, Urge You Modified Form Letters
676	illegible	Jon	--	--	Part 4 PDF, Save the Fraser River Form Letters
847	illegible	Melissa	--	--	Part 4 PDF, Save the Fraser River Form Letters
1719	illegible	Michael E.	--	--	Part 4 PDF, Strong Support Form Letters
661	illegible	Scott M.	--	--	Part 4 PDF, Save the Fraser River Form Letters
561	Ingram	Kent	--	--	Part 3 PDF, Public Part A
2206	Irving	Steven	--	--	Part 2 PDF, Online Petition Form Letters
1711	Ives, C.E.P.	Jim A.	--	--	Part 4 PDF, Public Part E
422	Ivy	Howard	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2210	Jackel	Zach	--	--	Part 2 PDF, Online Petition Form Letters
100	Jackson	Antoinette	--	--	Part 3 PDF, Public Part A
105	Jackson	Antoinette	--	--	Part 3 PDF, Public Part A
109	Jackson	Antoinette	--	--	Part 3 PDF, Public Part A
2526	Jackson	Marie	--	--	Part 2 PDF, Online Petition Form Letters
137	Jackson	Tom	--	--	Part 1 PDF, Crown Jewel Form Letters
101	Jackson	Will	--	--	Part 3 PDF, Public Part A
98	Jacob	Jaime	--	--	Part 3 PDF, Public Part A
1219	Jacober	Woody	--	--	Part 4 PDF, Urge You Form Letters
2192	Jacobs	Margo	--	--	Part 2 PDF, Online Petition Form Letters
1039	Jacobsen	Jill M.	--	--	Part 3 PDF, Public Part B

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1242	Jacobson	C.J.	--	--	Part 4 PDF, Urge You Form Letters
733	Jacobson	Harry	--	--	Part 3 PDF, Public Part A
1271	Jacobson	Ralph	--	--	Part 4 PDF, Urge You Form Letters
2435	Jacobson	Valerie	--	--	Part 2 PDF, Online Petition Form Letters
1263	Jaeger	Mark	--	--	Part 4 PDF, Urge You Form Letters
1964	Jaeke	Hal	--	--	Part 2 PDF, Online Petition Form Letters
1774	James	Ronnie	--	--	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
1416	James II	Ivan	--	--	Part 4 PDF, Urge You Modified Form Letters
1997	Jameson	Joseph	--	--	Part 2 PDF, Online Petition Form Letters
1873	Jameson	Kathy	--	--	Part 2 PDF, Online Petition Form Letters
2760	Jamison	Jim	--	--	Part 2 PDF, Online Petition Form Letters
13	Jamison	Larry	--	--	Part 3 PDF, Public Part A
2574	Jamison	Larry	--	--	Part 2 PDF, Online Petition Form Letters
2761	Jamison	Tara	--	--	Part 2 PDF, Online Petition Form Letters
604	Jampolsky	Jacquelyn	--	--	Part 1 PDF, Angling Community Form Letters
1579	Janoff	Edward	--	--	Part 4 PDF, Urge You Form Letters
819	Janowsky	Bill	--	--	Part 1 PDF, Angling Community Form Letters
2025	Jans	Irene	--	--	Part 2 PDF, Online Petition Form Letters
2753	Jarboe	JoLynn	--	--	Part 2 PDF, Online Petition Form Letters
2030	Jardine	Ashley	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2326	Jardine	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
2501	Jarosz	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
473	Jarrett	Nell	--	--	Part 3 PDF, Public Part A
1791	Jeans	Christopher	--	--	Part 2 PDF, Online Petition Form Letters
2667	Jenest	Edward	--	--	Part 2 PDF, Online Petition Form Letters
1339	Jenkins	Howard	--	--	Part 4 PDF, Urge You Form Letters
2080	Jenkins	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
1179	Jensen	Alan G.	--	--	Part 4 PDF, Public Part C
2110	Jensen	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
915	Jensen	Kathryn	President, Board of Directors	North Table Mountain Water and Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part D
2778	Jensen	Kimberley	--	--	Part 2 PDF, Online Petition Form Letters
1630	Jiminez	Elid	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
1050	Joe	Harry J.	--	--	Part 3 PDF, Public Part B
229	Johann, DDS, MS, PC	Andrew	--	--	Part 1 PDF, Angling Community Form Letters
525	Johannes	Bob	--	--	Part 3 PDF, Public Part A
1962	Johannes	Marie	--	--	Part 2 PDF, Online Petition Form Letters
1738	Johannes	Robert D.	--	--	Part 4 PDF, Public Part E
1345	Johns	Warren	--	--	Part 4 PDF, Urge You Form Letters
2489	Johns	Kelli	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2683	Johnson	Angela	--	--	Part 2 PDF, Online Petition Form Letters
1227	Johnson	Ann	--	--	Part 4 PDF, Urge You Form Letters
2801	Johnson	Candice	--	--	Part 2 PDF, Online Petition Form Letters
1245	Johnson	Craig	--	--	Part 4 PDF, Urge You Form Letters
1741	Johnson	Dave	President	Granby Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
44	Johnson	David	--	--	Part 3 PDF, Public Part A
1578	Johnson	David	--	--	Part 4 PDF, Urge You Form Letters
1385	Johnson	Dennis	--	--	Part 4 PDF, Urge You Form Letters
1433	Johnson	Greg	--	--	Part 4 PDF, Urge You Form Letters
916	Johnson	Kenneth	--	--	Part 3 PDF, Public Part B
916	Johnson	Muriel	--	--	Part 3 PDF, Public Part B
767	Johnson	Nicole L.	Attorney	Petros & White, LLC, Representing the Summit County Board of County Commissioners	Part 1 PDF, Jurisdictions/Municipalities Part B
2174	Johnson	Richard	--	--	Part 2 PDF, Online Petition Form Letters
1041	Johnson	Richard A.	--	Johnson and Repucci LLP, Attorneys and Counselors at Law, Representing Mesa Trail Ranch, LLC	Part 2 PDF, Organizations/Stakeholders Part A
1633	Johnson	Richard A.	--	--	Part 4 PDF, Public Part D
302	Johnson	Ronald	--	--	Part 1 PDF, Angling Community Form Letters
1227	Johnson	Sam	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2229	Johnson	Susan	--	--	Part 2 PDF, Online Petition Form Letters
1040	Johnson	Tim	--	--	Part 3 PDF, Public Part B
62	Johnson, CRS, GRI	Janene L.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1632	Johnson, CWP	Steven T.	--	--	Part 4 PDF, Public Part D
714	Johnston	Jason Scott	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2784	Johnston	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2379	Jonas	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
904	Jones	Alan	--	--	Part 1 PDF, Angling Community Form Letters
1869	Jones	Dena	--	--	Part 2 PDF, Online Petition Form Letters
1805	Jones	Evan	--	--	Part 2 PDF, Online Petition Form Letters
762	Jones	Kevin	--	--	Part 1 PDF, Angling Community Form Letters
1370	Jones	Michael	--	--	Part 4 PDF, Urge You Form Letters
1042	Jones	Susan P.	--	--	Part 3 PDF, Public Part B
1235	Jones	Thomas	--	--	Part 4 PDF, Urge You Form Letters
2658	Jones	Thomas	--	--	Part 2 PDF, Online Petition Form Letters
1438	Jordan	David	--	--	Part 4 PDF, Urge You Modified Form Letters
2303	Jordan	Justin	--	--	Part 2 PDF, Online Petition Form Letters
146	Joyce	Paul	--	--	Part 1 PDF, Crown Jewel Form Letters
293	Judkins	Peter	--	--	Part 1 PDF, Angling Community Form Letters
2645	Jung	Jason	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2723	Jungmann	Matt	--	--	Part 2 PDF, Online Petition Form Letters
2582	Jurgensen	Geoff	--	--	Part 2 PDF, Online Petition Form Letters
2809	Jurgensen	George	--	--	Part 2 PDF, Online Petition Form Letters
2768	Jurgensen	Lorraine	--	--	Part 2 PDF, Online Petition Form Letters
1353	Jurkoshek	Edward	--	--	Part 4 PDF, Urge You Form Letters
2123	Juskowich	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
596	Justice-Waddington	Jan	--	--	Part 3 PDF, Public Part A
1513	Kalamaya	Rick	--	--	Part 4 PDF, Urge You Modified Form Letters
917	Kalan	Thomas	Board of Directors	Winter Park Ranch Water & Sanitation District	Part 2 PDF, Organizations/Stakeholders Part A
2679	Kalendovsky	M.	--	--	Part 2 PDF, Online Petition Form Letters
1180	Kalendovsky	Mary	--	--	Part 4 PDF, Public Part C
1713	Kaminski	Patti	--	--	Part 2 PDF, Not Adequately Modified Form Letters
211	Kandell	Stephen	--	--	Part 1 PDF, Angling Community Form Letters
2776	Kane	A.	--	--	Part 2 PDF, Online Petition Form Letters
2600	Kane	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
2776	Kane	D.	--	--	Part 2 PDF, Online Petition Form Letters
1409	Kane	Kevin	--	--	Part 4 PDF, Urge You Modified Form Letters
2047	Kaplanis	Amy	--	--	Part 2 PDF, Online Petition Form Letters
41	Kaplysh	Ted	--	--	Part 3 PDF, Public Part A
2163	Karl	Debra	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
703	Karlstrom	Ingrid	--	--	Part 4 PDF, Save the Fraser River Form Letters
2276	Karlstrom	Ingrid	--	--	Part 2 PDF, Online Petition Form Letters
1676	Kaskel Wenger	Maureen	--	--	Part 4 PDF, Public Part E
83	Kastler	Mark	--	--	Part 3 PDF, Public Part A
83	Kastler	Pam	--	--	Part 3 PDF, Public Part A
721	Katieb	Tambi	Director, Policy and Planning	Eagle River Watershed Council, Inc.	Part 2 PDF, Organizations/Stakeholders Part A
2246	Kauber	Rod	--	--	Part 2 PDF, Online Petition Form Letters
698	Kauber	Rodney K.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2238	Kauber	Steve	--	--	Part 2 PDF, Online Petition Form Letters
1149	Kaufman	David	--	--	Part 1 PDF, Colorado Resident Form Letters
1300	Kay	Anthony	--	--	Part 4 PDF, Urge You Form Letters
2159	Kay	Luanne	--	--	Part 2 PDF, Online Petition Form Letters
881	Keane	C.R.	--	--	Part 1 PDF, Angling Community Form Letters
2420	Keck	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2498	Keeler	John	--	--	Part 2 PDF, Online Petition Form Letters
2351	Keene	Casey	--	--	Part 2 PDF, Online Petition Form Letters
33	Kehe	Roland R.	--	--	Part 3 PDF, Public Part A
1314	Keitges	Colonel Bob	--	--	Part 4 PDF, Urge You Form Letters
2505	Keller	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
1714	Keller	Jeff	--	--	Part 4 PDF, Strong Support Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1940	Keller	Maggie	--	--	Part 2 PDF, Online Petition Form Letters
2775	Kelley	Brandi	--	--	Part 2 PDF, Online Petition Form Letters
2507	Kelly	William	--	--	Part 2 PDF, Online Petition Form Letters
1899	Kendall	Lynn	--	--	Part 2 PDF, Online Petition Form Letters
2311	Kennedy	Case	--	--	Part 2 PDF, Online Petition Form Letters
1008	Kennedy	David	--	--	Part 4 PDF, Urge You Form Letters
412	Kennedy	James G.	--	--	Part 1 PDF, Angling Community Form Letters
2562	Kennell	Jeremy	--	--	Part 2 PDF, Online Petition Form Letters
190	Kerkmans	Scott	--	--	Part 1 PDF, Angling Community Form Letters
2289	Kerr	Jamie	--	--	Part 2 PDF, Online Petition Form Letters
2290	Kerr	Justin	--	--	Part 2 PDF, Online Petition Form Letters
1485	Kesler	Doug	--	--	Part 4 PDF, Urge You Modified Form Letters
701	Key	Cheryl	--	--	Part 4 PDF, Save the Fraser River Form Letters
1846	Key	Cheryl	--	--	Part 2 PDF, Online Petition Form Letters
1845	Key	Gary	--	--	Part 2 PDF, Online Petition Form Letters
1958	Key	Vicki	--	--	Part 2 PDF, Online Petition Form Letters
836	Keyes	Mary	--	SullivanGreenSeavy LLC	Part 1 PDF, Jurisdictions/Municipalities Part C
910	Keyes	Mary	--	SullivanGreenSeavy LLC	Part 2 PDF, Jurisdictions/Municipalities Part D
2819	Keyes	Mary	--	SullivanGreenSeavy LLC	Part 2 PDF, Jurisdictions/Municipalities Part E
739	Keyser	John M.	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2779	Kharas	Karl	--	--	Part 2 PDF, Online Petition Form Letters
820	Kiehm	Jean A.	--	--	Part 1 PDF, Angling Community Form Letters
271	Kieliszewskii	Peter	--	--	Part 1 PDF, Angling Community Form Letters
2542	Kielley	Kassie	--	--	Part 2 PDF, Online Petition Form Letters
2070	Kilgas	Shelly	--	--	Part 2 PDF, Online Petition Form Letters
1524	Kimminau	Ken	--	--	Part 4 PDF, Urge You Modified Form Letters
897	King	Anthony A.	--	--	Part 1 PDF, Angling Community Form Letters
1834	King	Christina	--	--	Part 2 PDF, Online Petition Form Letters
782	King	Mike	Deputy Director	Colorado Department of Natural Resources	Part 4 PDF, State
1853	King	Robert	--	--	Part 2 PDF, Online Petition Form Letters
638	King	Sharon	--	--	Part 4 PDF, Save the Fraser River Form Letters
1781	Kintsch	Julia	--	--	Part 2 PDF, Online Petition Form Letters
53	Kippenhan	Matthew	--	--	Part 3 PDF, Public Part A
591	Kirk	Sam	Chair, Board of Directors	Friends of the Lower Blue River	Part 2 PDF, Organizations/Stakeholders Part A
1131	Kirkbride	Abby	--	--	Part 1 PDF, Colorado Resident Form Letters
1803	Kirkpatrick	Michael	--	--	Part 2 PDF, Online Petition Form Letters
1634	Kirouac	Priscilla	--	--	Part 4 PDF, Public Part D
538	Kirwan	Mitch	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1346	Kitagawa	Benji	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
664	Kitlen	Sheila	--	--	Part 4 PDF, Save the Fraser River Form Letters
519	Klancke	Kirk	President	Colorado River Headwaters Chapter of Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
545	Klancke	Kirk	--	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
1375	Klancke	Kirk	--	Winter Park Ranch Water & Sanitation District	Part 4 PDF, Urge You Form Letters
1636	Klancke	Kirk	--	--	Part 4 PDF, Public Part D
615	Klancke	Marianne	--	--	Part 3 PDF, Public Part A
1998	Klancke	Marianne	--	--	Part 2 PDF, Online Petition Form Letters
1637	Klancke, MD, FACC	Kim A.	--	--	Part 2 PDF, Organizations/Stakeholders Part B
1043	Kleess	Trude	--	--	Part 3 PDF, Public Part B
625	Kleier	Catherine	--	--	Part 4 PDF, Save the Fraser River Form Letters
709	Klem	J.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1452	Kloster	Dan	--	--	Part 4 PDF, Urge You Modified Form Letters
1600	Klug	James	--	--	Part 4 PDF, Urge You Form Letters
2263	Knerr	Rosemary	--	--	Part 2 PDF, Online Petition Form Letters
2141	Knorr	Gayle	--	--	Part 2 PDF, Online Petition Form Letters
844	Knutson	Deborah	--	--	Part 4 PDF, Save the Fraser River Form Letters
1960	Kobe	Craig	--	--	Part 2 PDF, Online Petition Form Letters
2139	Koblitz	Bonnie	--	--	Part 2 PDF, Online Petition Form Letters
1944	Koch	Zia	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
458	Koenig	Shanna	Representative	Northwest Colorado Council of Governments	Part 1 PDF, Jurisdictions/Municipalities Part A
548	Koenig	Shanna	Representative	Northwest Colorado Council of Governments	Part 1 PDF, Jurisdictions/Municipalities Part A
918	Koenig	Shanna B.	Co-Director	Northwest Colorado Council of Governments	Part 2 PDF, Jurisdictions/Municipalities Part D
324	Kohler	Mara	--	--	Part 1 PDF, Angling Community Form Letters
536	Kohler	Mara	--	--	Part 3 PDF, Public Part A
2306	Kohler	Mara	--	--	Part 2 PDF, Online Petition Form Letters
43	Kohler	Mara T.	--	--	Part 3 PDF, Public Part A
2072	Kohlwey	Jill	--	--	Part 2 PDF, Online Petition Form Letters
1044	Kolinski	Cindy	--	--	Part 3 PDF, Public Part B
1044	Kolinski	Jeff	--	--	Part 3 PDF, Public Part B
1789	Konigsberg	David	--	--	Part 2 PDF, Online Petition Form Letters
579	Konikowski	Jeffrey	Board of Directors	Coal Creek Canyon Park & Recreation District	Part 1 PDF, Jurisdictions/Municipalities Part A
2793	Konrad	Thomas	--	--	Part 2 PDF, Online Petition Form Letters
316	Korrell	Steven	--	--	Part 1 PDF, Angling Community Form Letters
1045	Kortendick, A.I.C.P.	Michael J.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
26	Kosloske	Wayne	--	--	Part 2 PDF, Organizations/Stakeholders Part A
416	Kosloske	Wayne M.	--	--	Part 1 PDF, Angling Community Form Letters
803	Kossler	John	Board Member	Middle Park Conservation District	Part 1 PDF, Jurisdictions/Municipalities Part C
2707	Kotrba	Cass	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
995	Kramer	Jan	--	--	Part 2 PDF, Not Adequately Form Letters
2373	Kranzler	Paul	--	--	Part 2 PDF, Online Petition Form Letters
757	Kratz	Allyn	--	--	Part 1 PDF, Angling Community Form Letters
1545	Kratz	Allyn	--	--	Part 4 PDF, Urge You Modified Form Letters
1126	Krause	Courtney	--	--	Part 1 PDF, Colorado Resident Form Letters
827	Krayer	Brett	--	--	Part 3 PDF, Public Part B
827	Krayer	Mary	--	--	Part 3 PDF, Public Part B
1002	Kreutzer	Glenn	--	--	Part 4 PDF, Urge You Form Letters
2085	Krichbaum	Roger	--	--	Part 2 PDF, Online Petition Form Letters
1434	Kriske	Martha	--	--	Part 4 PDF, Urge You Form Letters
2661	Kroneberger	Barry	--	--	Part 2 PDF, Online Petition Form Letters
1046	Kropfli	Robert A.	--	--	Part 3 PDF, Public Part B
2187	Krueger	Julie	--	--	Part 2 PDF, Online Petition Form Letters
8	Krystyniak	Bernie	--	--	Part 3 PDF, Public Part A
52	Krystyniak	Bernie	--	--	Part 3 PDF, Public Part A
1388	Kuehster	Richard	--	--	Part 4 PDF, Urge You Form Letters
766	Kuhn	R. Eric	General Manager	Colorado River District	Part 4 PDF, State
2313	Kuhns	Jon	--	--	Part 2 PDF, Online Petition Form Letters
235	Kull	Lorenz A.	--	--	Part 1 PDF, Angling Community Form Letters
2036	Kulpa	Christopher	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
962	Kumbayi	Sherill	--	--	Part 1 PDF, Gross Reservoir Form Letters
1087	Kumbayi	Sherill	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1104	Kumbayi	Sherill	--	--	Part 1 PDF, Boulder County Form Letters
2628	Kunkel	Michael	--	--	Part 2 PDF, Online Petition Form Letters
777	Kurath	Kirsten M.	Attorney at Law	Williams, Turner & Holmes, P.C., on Behalf of the Grand Valley Water Users Association, the Orchard Mesa Irrigation District, and the Ute Water Conservancy District	Part 2 PDF, Organizations/Stakeholders Part A
1275	Kurish	John	--	--	Part 4 PDF, Urge You Form Letters
551	Kurtak	Karen	--	--	Part 3 PDF, Public Part A
967	Kurtz	Beverly	--	--	Part 1 PDF, Gross Reservoir Form Letters
1047	Kurtz	Beverly	--	--	Part 3 PDF, Public Part B
1450	Kushdilian	Victor	--	--	Part 4 PDF, Urge You Modified Form Letters
560	Lackey	Denise	--	--	Part 3 PDF, Public Part A
404	Lacy	Duff	--	--	Part 1 PDF, Angling Community Form Letters
1840	Lade	Martin	--	--	Part 2 PDF, Online Petition Form Letters
2243	LaDue	Peter	--	--	Part 2 PDF, Online Petition Form Letters
114	Lady	David	--	--	Part 3 PDF, Public Part A
286	Lady	Kathleen	--	--	Part 3 PDF, Public Part A
5	Lady, P.E.	David C.	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2746	LaFon	Melisa	--	--	Part 2 PDF, Online Petition Form Letters
1288	Lake	Clinton	--	--	Part 4 PDF, Urge You Form Letters
1270	Lalley	Shanna	--	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
327	Lamborne	Andy	--	--	Part 1 PDF, Angling Community Form Letters
2461	Lamm	Lewis	--	--	Part 2 PDF, Online Petition Form Letters
1715	Lancaster	Dean	--	--	Part 4 PDF, Public Part E
246	Lance	Sharon	--	--	Part 1 PDF, Angling Community Form Letters
1414	Landsbach	Jeff	--	--	Part 4 PDF, Urge You Modified Form Letters
1592	Lane	Gary	--	--	Part 4 PDF, Urge You Form Letters
2644	Langen	Laura	--	--	Part 2 PDF, Online Petition Form Letters
225	Langley	Bill	--	--	Part 1 PDF, Angling Community Form Letters
673	Lani	Julene A.	--	--	Part 4 PDF, Save the Fraser River Form Letters
673	Lani	Kurt	--	--	Part 4 PDF, Save the Fraser River Form Letters
1822	Lankin	Richard	--	--	Part 2 PDF, Online Petition Form Letters
2132	Lansing	Todd	--	--	Part 2 PDF, Online Petition Form Letters
452	Lanzi	Elmer	Trustee	Grand Lake Board of Trustees	Part 2 PDF, Organizations/Stakeholders Part A
775	Laraby	Doug	Planning Director	Winter Park Resort	Part 2 PDF, Organizations/Stakeholders Part A
1461	Larkin	Daniel J.	--	--	Part 4 PDF, Urge You Modified Form Letters
1532	Larned	Berle	--	--	Part 4 PDF, Urge You Modified Form Letters
2400	LaRochelle	Brad	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1831	Larson	Guy	--	--	Part 2 PDF, Online Petition Form Letters
2214	Lauber	Elliot	--	--	Part 2 PDF, Online Petition Form Letters
1860	Laurie	Wm. Bruce	--	--	Part 2 PDF, Online Petition Form Letters
2440	Lavoie	Cindy	--	--	Part 2 PDF, Online Petition Form Letters
1638	Lavrinenlco	Victor	--	--	Part 4 PDF, Public Part D
1638	Lavrinenlco	Yelena	--	--	Part 4 PDF, Public Part D
2705	Law Thyne	G.	--	--	Part 2 PDF, Online Petition Form Letters
1481	Lawmon	James B.	--	--	Part 4 PDF, Urge You Modified Form Letters
2473	Leahy	Susan	--	--	Part 2 PDF, Online Petition Form Letters
1048	Leavenworth	Connie	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2797	Lecinski	Alice	--	--	Part 2 PDF, Online Petition Form Letters
2270	Ledin	Megan	--	--	Part 2 PDF, Online Petition Form Letters
861	Ledyard	Henry B.	--	--	Part 1 PDF, Angling Community Form Letters
2426	Lee	Kris	--	--	Part 2 PDF, Online Petition Form Letters
2648	LeFils	Jeanne	--	--	Part 2 PDF, Online Petition Form Letters
77	Lehman	Erin	--	--	Part 3 PDF, Public Part A
1716	Lehmkuhl	George	--	--	Part 4 PDF, Public Part E
1716	Lehmkuhl	Judy	--	--	Part 4 PDF, Public Part E
2523	Leiser	Mike	--	--	Part 2 PDF, Online Petition Form Letters
2389	Leland	Pam	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
875	Leonard	K.	--	--	Part 1 PDF, Angling Community Form Letters
1366	Leonard III	Joe	--	--	Part 4 PDF, Urge You Form Letters
224	Lepori	Dr. Fabio	--	--	Part 1 PDF, Angling Community Form Letters
1989	Levett	Simon	--	--	Part 2 PDF, Online Petition Form Letters
1800	Lewis	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
263	Lichtenfels	Evan	--	--	Part 1 PDF, Angling Community Form Letters
2586	Lietzke	Florice	--	--	Part 2 PDF, Online Petition Form Letters
2586	Lietzke	John	--	--	Part 2 PDF, Online Petition Form Letters
1181	Lighthart	David W.	President and Chairman	Bear Creek Water and Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
748	Liles	Diana	--	--	Part 1 PDF, Angling Community Form Letters
816	Liles	James E.	--	--	Part 3 PDF, Public Part B
180	Lindberg	Erik	--	--	Part 1 PDF, Angling Community Form Letters
1392	Lingwood	Phil	--	--	Part 4 PDF, Urge You Form Letters
47	Linin	Kim	--	--	Part 3 PDF, Public Part A
518	Linn	Scott	Board Member	Colorado River Headwaters Chapter of Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
1832	Linscott	Bob	--	--	Part 2 PDF, Online Petition Form Letters
1502	Lippold	D.	--	--	Part 4 PDF, Urge You Modified Form Letters
2198	Lipscomb	Meredith	--	--	Part 2 PDF, Online Petition Form Letters
186	Lischer	Mike	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2618	Litten	David	--	--	Part 2 PDF, Online Petition Form Letters
175	Little	James	--	--	Part 1 PDF, Angling Community Form Letters
2763	Lively	Corinne	--	--	Part 2 PDF, Online Petition Form Letters
888	Livingston	Larry D.	--	--	Part 1 PDF, Angling Community Form Letters
747	Lodenkamper	John	--	--	Part 3 PDF, Public Part A
747	Lodenkamper	Linda	--	--	Part 3 PDF, Public Part A
4	Lodge	Kristen	--	--	Part 3 PDF, Public Part A
1556	Loehrke	Richard	--	--	Part 4 PDF, Urge You Form Letters
1494	Loehrlein	Patrick	--	--	Part 4 PDF, Urge You Modified Form Letters
244	Loftis	John E.	--	--	Part 1 PDF, Angling Community Form Letters
697	Logan	James C.	--	--	Part 4 PDF, Save the Fraser River Form Letters
312	Logan	Merritt	--	--	Part 1 PDF, Angling Community Form Letters
89	Logan	Newton	--	--	Part 3 PDF, Public Part A
455	Logan	Newton	--	--	Part 3 PDF, Public Part A
214	Logan	Newton F.	--	--	Part 1 PDF, Angling Community Form Letters
697	Logan, Jr.	James C.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2647	Logemann	Sidney	--	--	Part 2 PDF, Online Petition Form Letters
1065	Logterman	Earl	--	--	Part 1 PDF, Angling Community Form Letters
886	Logterman	Jim	--	--	Part 1 PDF, Angling Community Form Letters
1323	Logterman	Jim	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1971	Lohman	Mike	--	--	Part 2 PDF, Online Petition Form Letters
449	Long	Adam	--	--	Part 1 PDF, Angling Community Form Letters
50	Long	Becky	Water Caucus Coordinator	Colorado Environmental Coalition	Part 2 PDF, Organizations/Stakeholders Part A
484	Long	Becky	--	Colorado Environmental Coalition	Part 2 PDF, Organizations/Stakeholders Part A
485	Long	Becky	--	Colorado Environmental Coalition	Part 2 PDF, Organizations/Stakeholders Part A
571	Long	Becky	--	Colorado Environmental Coalition	Part 2 PDF, Organizations/Stakeholders Part A
796	Long	Becky	Water Caucus Coordinator	Colorado Environmental Coalition	Part 2 PDF, Organizations/Stakeholders Part A
797	Long	Becky	Water Caucus Coordinator and Chair	Colorado Environmental Coalition and Denver Water Citizen Advisory Committee	Part 2 PDF, Organizations/Stakeholders Part A
1086	Long	Conrad	--	--	Part 4 PDF, Public Part C
91	Long	Doug	--	--	Part 3 PDF, Public Part A
45	Long	Kimbal	--	--	Part 3 PDF, Public Part A
20	Long	Vivian	--	--	Part 3 PDF, Public Part A
2767	Longfield	Priscilla	--	--	Part 2 PDF, Online Petition Form Letters
2788	Loong	Alvin	--	--	Part 2 PDF, Online Petition Form Letters
280	Lorden	Tommy	--	--	Part 1 PDF, Angling Community Form Letters
1871	Lorens	Melinda	--	--	Part 2 PDF, Online Petition Form Letters
334	Lorimor	Dick	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
334	Lorimor	Marilyn	--	--	Part 1 PDF, Angling Community Form Letters
1549	Lousen	Steve	--	--	Part 4 PDF, Urge You Modified Form Letters
2718	Loveless	Ann	--	--	Part 2 PDF, Online Petition Form Letters
1347	Lovin	Dale	--	--	Part 4 PDF, Urge You Form Letters
170	Lowell	Andrew	--	--	Part 1 PDF, Angling Community Form Letters
233	Lowell	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
2671	Lucas	Richard	--	--	Part 2 PDF, Online Petition Form Letters
798	Lucas, Esq.	Olivia D.	Associate	Ryley Carlock & Applewhite, on Behalf of Blue Valley Ranch	Part 2 PDF, Organizations/Stakeholders Part A
2116	Lucas, Jr.	Raymond	--	--	Part 2 PDF, Online Petition Form Letters
2696	Lucero	Debra	--	--	Part 2 PDF, Online Petition Form Letters
871	Lugenbill	Chris H.	--	--	Part 1 PDF, Angling Community Form Letters
1051	Luhman	Herbert R.	--	--	Part 3 PDF, Public Part B
1305	Lukes	William	--	--	Part 4 PDF, Urge You Form Letters
972	Lund	Fern	--	--	Part 1 PDF, Gross Reservoir Form Letters
1108	Lund	Fern	--	--	Part 1 PDF, Boulder County Form Letters
213	Luneau	Barbara	--	--	Part 1 PDF, Angling Community Form Letters
1488	Luneau	Barbara	--	--	Part 4 PDF, Urge You Modified Form Letters
1449	Luth	Matthew	--	--	Part 4 PDF, Urge You Modified Form Letters
1563	Lutman	Brian	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
541	Lutz	David	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1828	Lux	Dennis	--	--	Part 2 PDF, Online Petition Form Letters
1977	Lyle	Betsy	--	--	Part 2 PDF, Online Petition Form Letters
2554	Lyman	A'ala	--	--	Part 2 PDF, Online Petition Form Letters
2518	Lyman	Laulima	--	--	Part 2 PDF, Online Petition Form Letters
362	Lynch	Allen E.	--	--	Part 1 PDF, Angling Community Form Letters
1574	Lynch	Edward	--	--	Part 4 PDF, Urge You Modified Form Letters
419	Lynch	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
2448	M.	Peter	--	--	Part 2 PDF, Online Petition Form Letters
184	Maassen	Marc E.	--	--	Part 1 PDF, Angling Community Form Letters
919	Mabley	Dale K.	--	--	Part 3 PDF, Public Part B
728	Mabry	Beverly	--	--	Part 1 PDF, Crown Jewel Form Letters
1535	MacBeth	Jamie	--	--	Part 4 PDF, Urge You Modified Form Letters
1887	MacDonald	Jim	--	--	Part 2 PDF, Online Petition Form Letters
262	MacDonald	Matt	--	--	Part 1 PDF, Angling Community Form Letters
2561	Mace	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
438	MacGregor	Darcy	--	--	Part 3 PDF, Public Part A
2054	MacGregor	Darcy	--	--	Part 2 PDF, Online Petition Form Letters
825	Mack	Rob	--	--	Part 3 PDF, Public Part B
1601	MacLachlan	Ron	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
135	MacPhail	Kristyn	--	--	Part 1 PDF, Crown Jewel Form Letters
1796	Maddox	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
1052	Maddox	David L.	--	--	Part 3 PDF, Public Part B
2638	Maddox	Traci	--	--	Part 2 PDF, Online Petition Form Letters
1919	Madole	Juanita	--	--	Part 2 PDF, Online Petition Form Letters
36	Maggiore	Diana	--	--	Part 3 PDF, Public Part A
1318	Magill	Robert	--	--	Part 4 PDF, Urge You Form Letters
1319	Magill	Sean	--	--	Part 4 PDF, Urge You Form Letters
1197	Mahardy	Edward	--	--	Part 4 PDF, Urge You Form Letters
1912	Mahoney	Eibhlhin	--	--	Part 2 PDF, Online Petition Form Letters
2534	Mahony	Ann	--	--	Part 2 PDF, Online Petition Form Letters
1970	Maier	Melissa	--	--	Part 2 PDF, Online Petition Form Letters
2595	Mailloux	Tracy	--	--	Part 2 PDF, Online Petition Form Letters
607	Maior	Madelaine	--	--	Part 1 PDF, Angling Community Form Letters
1417	Mair	Jane	--	--	Part 4 PDF, Urge You Modified Form Letters
899	Makatura	Robert	--	--	Part 1 PDF, Angling Community Form Letters
1274	Maki	Suzi	President	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
2269	Maki	Suzi	--	--	Part 2 PDF, Online Petition Form Letters
353	Malany	Moira	--	--	Part 1 PDF, Boating Petition Form Letters
443	Malec	Mike	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1945	Mallard	Emily	--	--	Part 2 PDF, Online Petition Form Letters
1893	Mallard	Gloria	--	--	Part 2 PDF, Online Petition Form Letters
1870	Mallard	Morgan	--	--	Part 2 PDF, Online Petition Form Letters
2014	Mallard	Russ	--	--	Part 2 PDF, Online Petition Form Letters
197	Malling	Robert	--	--	Part 1 PDF, Angling Community Form Letters
2277	Malone	Joe	--	--	Part 2 PDF, Online Petition Form Letters
2354	Malone	Mark	--	--	Part 2 PDF, Online Petition Form Letters
571	Maloney	Meghan	--	San Juan Citizens Alliance	Part 2 PDF, Organizations/Stakeholders Part A
796	Maloney	Meghan	River Campaign Director	San Juan Citizens Alliance	Part 2 PDF, Organizations/Stakeholders Part A
1004	Mangean	Ronald	--	--	Part 4 PDF, Urge You Form Letters
2551	Manguso	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
2685	Manly	Carolyn	--	--	Part 2 PDF, Online Petition Form Letters
2452	Manning	Sharon	--	--	Part 2 PDF, Online Petition Form Letters
376	Mannsfeld	Dr. Bjoern	--	--	Part 1 PDF, Crown Jewel Form Letters
1017	Marcum	Kimberly	--	--	Part 4 PDF, Urge You Form Letters
1224	Marez	Richard	--	--	Part 4 PDF, Urge You Form Letters
509	Margolis	Zach	Utility Manager	Town of Silverton	Part 1 PDF, Jurisdictions/Municipalities Part A
790	Margolis	Zach	--	--	Part 3 PDF, Public Part B
1053	Marhert	Gail	--	--	Part 3 PDF, Public Part B
2674	Mark	Linda	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
760	Markevich	Alex	--	--	Part 3 PDF, Public Part B
763	Markevich	Christel	--	--	Part 3 PDF, Public Part B
2716	Marschall	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
1456	Marshall	Adam	--	--	Part 4 PDF, Urge You Form Letters
1641	Marshall	Andrea	--	--	Part 4 PDF, Public Part D
1379	Marshall	Don	--	--	Part 4 PDF, Urge You Form Letters
2278	Marshall	Jack	--	--	Part 2 PDF, Online Petition Form Letters
2787	Marshall	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
1054	Marsolek	Jane	--	--	Part 3 PDF, Public Part B
1413	Martin	Fred	--	--	Part 4 PDF, Urge You Modified Form Letters
1769	Martin	James B.	Executive Director	Colorado Department of Natural Resources	Part 4 PDF, State
1055	Martin	Julie	--	--	Part 3 PDF, Public Part B
2211	Martin	Julie	--	--	Part 2 PDF, Online Petition Form Letters
579	Martin	Linda	Board of Directors	Coal Creek Canyon Park & Recreation District	Part 1 PDF, Jurisdictions/Municipalities Part A
1897	Martin	Tracie	--	--	Part 2 PDF, Online Petition Form Letters
2128	Martinek	Becky	--	--	Part 2 PDF, Online Petition Form Letters
349	Martinez	David A.	--	--	Part 1 PDF, Angling Community Form Letters
504	Martinez	Gary	County Manager	Summit County	Part 1 PDF, Jurisdictions/Municipalities Part A
920	Martinez	Gary	County Manager	Summit County	Part 2 PDF, Jurisdictions/Municipalities Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2349	Marx	Elizabeth	--	--	Part 2 PDF, Online Petition Form Letters
1023	Marzano	Christina	--	--	Part 4 PDF, Urge You Form Letters
1021	Marzano	Fred	--	--	Part 4 PDF, Urge You Form Letters
2546	Masoner	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
345	Mastro	Dustin	--	--	Part 1 PDF, Angling Community Form Letters
801	Mathes	Dan	--	City of Louisville	Part 1 PDF, Jurisdictions/Municipalities Part C
406	Matsumoto	Rick	--	--	Part 1 PDF, Angling Community Form Letters
601	Matt	Ryan	--	--	Part 1 PDF, Angling Community Form Letters
1750	Matter	John	--	--	Part 1 PDF, Angling Community Form Letters
1717	Mattesen	Betina	--	--	Part 4 PDF, Public Part E
1583	Matteson	Drew	--	--	Part 4 PDF, Urge You Form Letters
1561	Mauck	Tim	--	--	Part 4 PDF, Urge You Modified Form Letters
300	Maxwell	Susan	--	--	Part 1 PDF, Angling Community Form Letters
125	Mayer	J.	--	--	Part 3 PDF, Public Part A
354	Mayer	J.	--	--	Part 1 PDF, Boating Petition Form Letters
2368	Mayfield	Kati	--	--	Part 2 PDF, Online Petition Form Letters
2459	Mazu	Greg	--	--	Part 2 PDF, Online Petition Form Letters
2108	Mazzarisi	Thomas	--	--	Part 2 PDF, Online Petition Form Letters
81	McAdoo	Steve	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1910	McAdow	Cindy	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2032	McAlpine	Steve	--	--	Part 2 PDF, Online Petition Form Letters
117	McCaddon	Sheila	Manager	Winter Park Resort Travel Services/Intrawest Colorado Travel	Part 2 PDF, Organizations/Stakeholders Part A
2756	McCarthy	Amalie	--	--	Part 2 PDF, Online Petition Form Letters
1351	McCarthy	Jack	--	--	Part 4 PDF, Urge You Form Letters
2447	McCarthy	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
2576	McCarthy	William	--	--	Part 2 PDF, Online Petition Form Letters
1178	McCasky	J. Kevin	--	Jefferson County	Part 2 PDF, Jurisdictions/Municipalities Part E
537	McConnell	Chas	--	--	Part 3 PDF, Public Part A
780	McConnell	Chas	--	--	Part 3 PDF, Public Part B
2384	McConnell	Chas	--	--	Part 2 PDF, Online Petition Form Letters
338	McCormick	Brock	--	--	Part 1 PDF, Angling Community Form Letters
1807	McCormick	Brock	--	--	Part 2 PDF, Online Petition Form Letters
2690	McCoy	Cynthia	--	--	Part 2 PDF, Online Petition Form Letters
2686	McCoy	Glenn	--	--	Part 2 PDF, Online Petition Form Letters
76	McCoy	Glenn E.	--	--	Part 3 PDF, Public Part A
2046	McCoy	Joy	--	--	Part 2 PDF, Online Petition Form Letters
76	McCoy	Sharon L.	--	--	Part 3 PDF, Public Part A
640	McCracken	Dean	--	--	Part 4 PDF, Save the Fraser River Form Letters
640	McCracken	Terrah	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2610	McCrea	Darin	--	--	Part 2 PDF, Online Petition Form Letters
646	McCreu	Case	--	--	Part 4 PDF, Save the Fraser River Form Letters
550	McCutchen	Kyle	--	--	Part 3 PDF, Public Part A
752	McDermott	Anna	--	--	Part 3 PDF, Public Part A
1459	McDermott	Shane	--	--	Part 4 PDF, Urge You Form Letters
1913	McDonald	Colette	--	--	Part 2 PDF, Online Petition Form Letters
591	McDonald	Myrth	Executive Director	Friends of the Lower Blue River	Part 2 PDF, Organizations/Stakeholders Part A
1484	McDonough	Mike	--	--	Part 4 PDF, Urge You Modified Form Letters
921	McGinnis	Mike	Chairman of the Board	Jefferson Economic Council	Part 2 PDF, Jurisdictions/Municipalities Part D
1534	McGoldrick	Michael	--	--	Part 4 PDF, Urge You Modified Form Letters
92	McGrew	Kent	--	--	Part 3 PDF, Public Part A
2297	McGuan	Kristen	--	--	Part 2 PDF, Online Petition Form Letters
2284	McIntyre	Liz	--	--	Part 2 PDF, Online Petition Form Letters
1639	McKay	Charles C.	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
2584	McKittrick	Emilie	--	--	Part 2 PDF, Online Petition Form Letters
1866	McKnight	Maura	--	--	Part 2 PDF, Online Petition Form Letters
1439	McKone-Beeson	Sandra	--	--	Part 4 PDF, Urge You Form Letters
1457	McLaren	Jack	--	--	Part 4 PDF, Urge You Modified Form Letters
1460	McLaren	John	--	--	Part 4 PDF, Urge You Modified Form Letters
603	McLaughlin	Heather	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2701	McLaughry	David	--	--	Part 2 PDF, Online Petition Form Letters
2621	McManigal	Carrie	--	--	Part 2 PDF, Online Petition Form Letters
1202	McMillan	David	--	--	Part 4 PDF, Urge You Form Letters
151	McMillen	Keli R.	--	--	Part 3 PDF, Public Part A
2307	McMurray	Daniel	--	--	Part 2 PDF, Online Petition Form Letters
1640	McMurray	Daniel P.	--	--	Part 4 PDF, Public Part D
1813	McNamee	Carol	--	--	Part 2 PDF, Online Petition Form Letters
1216	McNicholas	David	--	--	Part 4 PDF, Urge You Form Letters
2045	McNinch	Heidi	--	--	Part 2 PDF, Online Petition Form Letters
523	McQueary	Richard	Board Member	Greater Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
1862	McReynolds	Richard	--	--	Part 2 PDF, Online Petition Form Letters
2365	McVeigh	Antoinette	--	--	Part 2 PDF, Online Petition Form Letters
2075	McVeigh Stanley	Kelly	--	--	Part 2 PDF, Online Petition Form Letters
1894	McWilliams	Jesse	--	--	Part 2 PDF, Online Petition Form Letters
1066	McWilliams	Melinda	--	--	Part 4 PDF, Public Part C
2695	McWilliams	Melinda	--	--	Part 2 PDF, Online Petition Form Letters
1311	Meadows	Vern	--	--	Part 4 PDF, Urge You Form Letters
1349	Medaugh	Peter	--	--	Part 4 PDF, Urge You Form Letters
1059	Mediate, Jr.	Bruno A.	--	--	Part 1 PDF, Angling Community Form Letters
29	Megeath	Anthony B.	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
192	Mellsop	Hayden	--	--	Part 1 PDF, Angling Community Form Letters
741	Menapace	David	--	--	Part 1 PDF, Angling Community Form Letters
2525	Mendez	Maria	--	--	Part 2 PDF, Online Petition Form Letters
1598	Merlino	Albert	--	--	Part 4 PDF, Urge You Form Letters
1297	Merrill	Shawn	--	--	Part 4 PDF, Urge You Form Letters
2587	Merrill	Xondra	--	--	Part 2 PDF, Online Petition Form Letters
776	Merry, REHS	Raymond P.	Director	Eagle County Department of Environmental Health	Part 1 PDF, Jurisdictions/Municipalities Part C
2251	Mesec	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
16	Mesec	Patricia F.	--	--	Part 3 PDF, Public Part A
1421	Messach	Kyle	--	--	Part 4 PDF, Urge You Modified Form Letters
1589	Metzger	Jeff	--	--	Part 4 PDF, Urge You Form Letters
1642	Metzger	Jeffrey R.	--	--	Part 4 PDF, Public Part D
984	Meuser	William	--	--	Part 2 PDF, Not Adequately Form Letters
1016	Meyer	Chris	--	--	Part 4 PDF, Urge You Form Letters
692	Meyer	K.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1068	Meyer	Kristine	--	--	Part 4 PDF, Public Part C
2005	Meyer	Kristine	--	--	Part 2 PDF, Online Petition Form Letters
635	Meyer	Nick	--	--	Part 4 PDF, Save the Fraser River Form Letters
108	Meyer	Patricia	--	--	Part 3 PDF, Public Part A
67	Meyer	Stan	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1718	Meyring	Herb	--	--	Part 4 PDF, Public Part E
854	Michaud	Christopher A.	--	--	Part 1 PDF, Angling Community Form Letters
2449	Michel	David	--	--	Part 2 PDF, Online Petition Form Letters
1963	Michel	Meara	--	--	Part 2 PDF, Online Petition Form Letters
2629	Michel	Ralph	--	--	Part 2 PDF, Online Petition Form Letters
1523	Mierzejewski	M.M.	--	--	Part 4 PDF, Urge You Modified Form Letters
2527	Mike	Giesie	--	--	Part 2 PDF, Online Petition Form Letters
583	Mikol	Kathy	--	--	Part 1 PDF, Angling Community Form Letters
2590	Milanovich	Linda	--	--	Part 2 PDF, Online Petition Form Letters
2604	Milek	Bill	--	--	Part 2 PDF, Online Petition Form Letters
2239	Miles	Mike	--	--	Part 2 PDF, Online Petition Form Letters
1891	Miller	Amy	--	--	Part 2 PDF, Online Petition Form Letters
484	Miller	Bart	--	Western Resource Advocates	Part 2 PDF, Organizations/Stakeholders Part A
485	Miller	Bart	--	Western Resource Advocates	Part 2 PDF, Organizations/Stakeholders Part A
571	Miller	Bart	--	Western Resource Advocates	Part 2 PDF, Organizations/Stakeholders Part A
882	Miller	Carolyn	--	--	Part 1 PDF, Angling Community Form Letters
1770	Miller	Craig	--	--	Part 4 PDF, Public Part E
1948	Miller	Derek	--	--	Part 2 PDF, Online Petition Form Letters
265	Miller	Dwight	--	--	Part 3 PDF, Public Part A
209	Miller	Fred	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1036	Miller	Fred	--	--	Part 1 PDF, Angling Community Form Letters
1575	Miller	Fred	--	--	Part 4 PDF, Urge You Modified Form Letters
241	Miller	Jean	--	--	Part 3 PDF, Public Part A
1357	Miller	Mark	--	--	Part 4 PDF, Urge You Form Letters
408	Miller	Mark J.	--	--	Part 1 PDF, Angling Community Form Letters
256	Miller	Mark R.	--	--	Part 1 PDF, Angling Community Form Letters
306	Miller	Maureen J.	--	--	Part 3 PDF, Public Part A
1573	Miller	Michael D.	--	--	Part 4 PDF, Urge You Modified Form Letters
1365	Miller	Michael J.	--	--	Part 4 PDF, Urge You Form Letters
103	Miller	Mike	--	--	Part 3 PDF, Public Part A
584	Miller	Miles B.	--	--	Part 1 PDF, Angling Community Form Letters
2151	Miller	Miles B.	--	--	Part 2 PDF, Online Petition Form Letters
102	Miller	Mrs. Dwight	--	--	Part 3 PDF, Public Part A
535	Miller	Ray	--	--	Part 3 PDF, Public Part A
1069	Miller	Ray	--	--	Part 4 PDF, Public Part C
2107	Miller	Rick	--	--	Part 2 PDF, Online Petition Form Letters
2346	Miller	Rick	--	--	Part 2 PDF, Online Petition Form Letters
1225	Miller	Robert	--	--	Part 4 PDF, Urge You Form Letters
398	Miller	Russell	--	--	Part 1 PDF, Angling Community Form Letters
1981	Miller	Sybil	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2231	Miller	Tim	--	--	Part 2 PDF, Online Petition Form Letters
658	Millinex	Dee	--	--	Part 4 PDF, Save the Fraser River Form Letters
658	Millinex	Rick	--	--	Part 4 PDF, Save the Fraser River Form Letters
1372	Mills	Kent	--	--	Part 4 PDF, Urge You Form Letters
1856	Minor	Marianne	--	--	Part 2 PDF, Online Petition Form Letters
259	Minyard	Tom	--	--	Part 1 PDF, Angling Community Form Letters
2765	Mirabito	Mark	--	--	Part 2 PDF, Online Petition Form Letters
722	Misbach	Neal	--	--	Part 3 PDF, Public Part A
1018	Misbach	Neal	--	--	Part 4 PDF, Urge You Form Letters
662	Misbach	Neal A.	--	--	Part 4 PDF, Save the Fraser River Form Letters
171	Mishell	Alan	--	--	Part 1 PDF, Angling Community Form Letters
269	Mishell	Alan	--	--	Part 2 PDF, Organizations/Stakeholders Part A
389	Miskie	Sue A.	--	--	Part 3 PDF, Public Part A
2529	Mitan	Mark	--	--	Part 2 PDF, Online Petition Form Letters
2013	Mitchell	Jennifer	--	--	Part 2 PDF, Online Petition Form Letters
2649	Mitchell	Nick	--	--	Part 2 PDF, Online Petition Form Letters
1239	Moe	Mark	--	--	Part 4 PDF, Urge You Form Letters
296	Moehring	Ryan	--	--	Part 1 PDF, Angling Community Form Letters
2472	Moffitt	Dylan	--	--	Part 2 PDF, Online Petition Form Letters
1006	Mohrlang	Jerry	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
833	Mondeel	Debbie	--	--	Part 3 PDF, Public Part B
1878	Monkouski	John	--	--	Part 2 PDF, Online Petition Form Letters
1022	Montgomery	Jayne	--	--	Part 4 PDF, Urge You Form Letters
1038	Montoya	Joe	--	--	Part 1 PDF, Angling Community Form Letters
1571	Montoya	Joe	--	--	Part 4 PDF, Urge You Modified Form Letters
1380	Mooney	Elene	--	--	Part 4 PDF, Urge You Form Letters
1380	Mooney	Thomas	--	--	Part 4 PDF, Urge You Form Letters
653	Moore	CJH	--	--	Part 4 PDF, Save the Fraser River Form Letters
1404	Moore	Eric	--	--	Part 4 PDF, Urge You Modified Form Letters
1503	Moore	Gordon	--	--	Part 4 PDF, Urge You Modified Form Letters
2504	Moore	Jacqueline	--	--	Part 2 PDF, Online Petition Form Letters
226	Moore	Michael	--	--	Part 1 PDF, Angling Community Form Letters
1307	Moore	Paula	--	--	Part 4 PDF, Urge You Form Letters
367	Moran	Jack	--	--	Part 2 PDF, Not Adequately Form Letters
1515	Moran	Ken	--	--	Part 4 PDF, Urge You Modified Form Letters
2622	Moran	Patrick	--	--	Part 2 PDF, Online Petition Form Letters
363	Moran	Vicki	--	--	Part 2 PDF, Not Adequately Form Letters
2287	Morck	Kathe	--	--	Part 2 PDF, Online Petition Form Letters
2339	Morck	William	--	--	Part 2 PDF, Online Petition Form Letters
1643	Moreau	Truda	--	--	Part 4 PDF, Public Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1643	Moreau	Warren	--	--	Part 4 PDF, Public Part D
347	Moret	Mark	--	--	Part 1 PDF, Angling Community Form Letters
347	Moret	Pamela	--	--	Part 1 PDF, Angling Community Form Letters
188	Moret	Tim	--	--	Part 1 PDF, Angling Community Form Letters
2360	Morgan	Leslie	--	--	Part 2 PDF, Online Petition Form Letters
1390	Morisset	Jeffrey	--	--	Part 4 PDF, Urge You Form Letters
2189	Morisset	Kim	--	--	Part 2 PDF, Online Petition Form Letters
1877	Morlock	Ian	--	--	Part 2 PDF, Online Petition Form Letters
2456	Morris	Chris	--	--	Part 2 PDF, Online Petition Form Letters
1489	Morris	Guy	--	--	Part 4 PDF, Urge You Form Letters
200	Morrissey	Shawn	--	--	Part 1 PDF, Angling Community Form Letters
1644	Morrissey-Grim	Meghan	--	--	Part 4 PDF, Public Part D
1644	Morrissey-Grim Family	--	--	--	Part 4 PDF, Public Part D
2162	Morrow	Krissy	--	--	Part 2 PDF, Online Petition Form Letters
294	Morton	Gene L.	--	--	Part 1 PDF, Angling Community Form Letters
386	Mosesso	John	--	--	Part 1 PDF, Angling Community Form Letters
423	Mosier	David	--	--	Part 1 PDF, Angling Community Form Letters
1645	Moss	Jim	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
307	Moutfort	Brad	--	--	Part 1 PDF, Angling Community Form Letters
2021	Mowrey	Eric R.	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2393	Mowrey	Katherine	--	--	Part 2 PDF, Online Petition Form Letters
1265	Muchet	Don	--	--	Part 4 PDF, Urge You Form Letters
796	Mueller	Megan	Staff Biologist	Center for Native Ecosystems	Part 2 PDF, Organizations/Stakeholders Part A
471	Muftic	Dr. Michael	--	--	Part 3 PDF, Public Part A
471	Muftic	Felicia	--	--	Part 3 PDF, Public Part A
694	Muhlbauer	Claus	--	--	Part 4 PDF, Save the Fraser River Form Letters
1374	Mui	Cecily	--	--	Part 4 PDF, Urge You Form Letters
2812	Mullen	David	--	--	Part 2 PDF, Online Petition Form Letters
527	Munn	Scott	--	--	Part 3 PDF, Public Part A
384	Munson	Fred	--	--	Part 1 PDF, Angling Community Form Letters
368	Murphy	Brooke	--	--	Part 1 PDF, Angling Community Form Letters
1035	Murphy	John	--	--	Part 1 PDF, Angling Community Form Letters
2394	Murphy	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
255	Murray	Jay A.	--	--	Part 1 PDF, Angling Community Form Letters
2738	Murray	Margaret	--	--	Part 2 PDF, Online Petition Form Letters
2362	Murray Hedlun	Michele	--	--	Part 2 PDF, Online Petition Form Letters
2609	Musman Quigley	Ann	--	--	Part 2 PDF, Online Petition Form Letters
2170	Mustapha	Lynna	--	--	Part 2 PDF, Online Petition Form Letters
649	Myerly	A.	--	--	Part 4 PDF, Save the Fraser River Form Letters
922	Myers	James F.	Mayor	Town of Winter Park	Part 2 PDF, Jurisdictions/Municipalities Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
40	Nadeau	Steve	--	--	Part 3 PDF, Public Part A
1900	Nagy	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
2099	Naill	Philip	--	--	Part 2 PDF, Online Petition Form Letters
1863	Nance	Colleen	--	--	Part 2 PDF, Online Petition Form Letters
1555	Naranja	Anthony	--	--	Part 4 PDF, Urge You Modified Form Letters
1530	Nash	Craig	--	--	Part 4 PDF, Urge You Modified Form Letters
1758	Nash	Rob	--	--	Part 1 PDF, Angling Community Form Letters
289	Nasif	Naum	--	--	Part 1 PDF, Angling Community Form Letters
675	Neff	Kyley	--	--	Part 4 PDF, Save the Fraser River Form Letters
2496	Negley	George	--	--	Part 2 PDF, Online Petition Form Letters
2043	Neibauer	Michelle	--	--	Part 2 PDF, Online Petition Form Letters
1264	Neidzwiecki	John	--	--	Part 4 PDF, Urge You Form Letters
1238	Nelson	Dennis	--	--	Part 4 PDF, Urge You Form Letters
2731	Nelson	Kathleen	--	--	Part 2 PDF, Online Petition Form Letters
868	Nelson	Todd	Chairman	Blue Valley Acres Metro	Part 2 PDF, Organizations/Stakeholders Part A
926	Nelson	Todd	Chairman	Blue Valley Acres Metro	Part 2 PDF, Organizations/Stakeholders Part A
923	Nelson	Todd	--	--	Part 3 PDF, Public Part B
924	Nelson	Todd	--	--	Part 3 PDF, Public Part B
925	Nelson	Todd	--	--	Part 3 PDF, Public Part B
1646	Nelson	Todd	--	--	Part 4 PDF, Public Part D

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1986	Nesbitt	Kristina	--	--	Part 2 PDF, Online Petition Form Letters
1547	Neubecker	Ken	--	--	Part 4 PDF, Urge You Modified Form Letters
799	Neubecker	Ken	--	--	Part 3 PDF, Public Part B
450	Newberry	James	County Commissioner	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
515	Newberry	James	County Commissioner	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
1909	Newhouse	Joan	--	--	Part 2 PDF, Online Petition Form Letters
1817	Newman	Sarah	--	--	Part 2 PDF, Online Petition Form Letters
520	Newton	Rich	--	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
1647	Newton	Richard E.	Attorney at Law	Stern & Newton, P.C.	Part 2 PDF, Organizations/Stakeholders Part B
1648	Newton	Richard E.	Attorney at Law	Stern & Newton, P.C.	Part 2 PDF, Organizations/Stakeholders Part B
2335	Nguyen	Thai	--	--	Part 2 PDF, Online Petition Form Letters
1720	Nichols	Edward C.	State Historic Preservation Officer	Office of Archaeological and Historic Preservation	Part 4 PDF, State
766	Nichols	Lorra L.	Paralegal	Colorado River District Conservation District	Part 4 PDF, State
2242	Nicholson	Jeanne	--	--	Part 2 PDF, Online Petition Form Letters
456	Nickum	David	Executive Director	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
484	Nickum	David	--	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
485	Nickum	David	--	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
571	Nickum	David	--	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
826	Nickum	David	Executive Director	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2292	Nicol	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
1222	Niehans	James	--	--	Part 4 PDF, Urge You Form Letters
1296	Nikaitani	Peter	--	--	Part 4 PDF, Urge You Form Letters
736	Nissen	Barbara	--	--	Part 3 PDF, Public Part A
744	Nissen	Jerry (Gerald)	--	--	Part 2 PDF, Organizations/Stakeholders Part A
588	Nix	Susan E.	President, Board of Directors	Willows Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
335	Nixon	Rob	--	--	Part 1 PDF, Angling Community Form Letters
705	Noel	Susan	--	--	Part 4 PDF, Save the Fraser River Form Letters
2777	Nohl	Shawn	--	--	Part 2 PDF, Online Petition Form Letters
1037	Nolan	Dan	--	--	Part 3 PDF, Public Part B
2338	Nolting	Darlene	--	--	Part 2 PDF, Online Petition Form Letters
2378	Norberg	Karen	--	--	Part 2 PDF, Online Petition Form Letters
61	Northcraft	Dan	Construction Manager	Habitat for Humanity of the St. Vrain Valley	Part 2 PDF, Organizations/Stakeholders Part A
1386	Nosler	David	--	--	Part 4 PDF, Urge You Form Letters
2807	Nussbaum Cordts	Silvina	--	--	Part 2 PDF, Online Petition Form Letters
2623	Nyvall	Peter	--	--	Part 2 PDF, Online Petition Form Letters
1788	Oberlink	Craig	--	--	Part 2 PDF, Online Petition Form Letters
1704	Obermeyer	Deborah	CEO	Metro North Chamber of Commerce	Part 4 PDF, Strong Support Form Letters
1649	O'Brian	Stevan L.	--	--	Part 2 PDF, Organizations/Stakeholders Part B

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2087	O'Brien	Steven	--	--	Part 2 PDF, Online Petition Form Letters
2464	Ochsner	Angie	--	--	Part 2 PDF, Online Petition Form Letters
1976	OConnell	Denise	--	--	Part 2 PDF, Online Petition Form Letters
2799	O'Connor	James	--	--	Part 2 PDF, Online Petition Form Letters
1987	O'Connor	Kari	--	--	Part 2 PDF, Online Petition Form Letters
547	O'Donnell	Canton	Representative	Three Lakes Watershed Association	Part 2 PDF, Organizations/Stakeholders Part A
905	O'Donnell	Canton	President	Three Lakes Watershed Association	Part 2 PDF, Organizations/Stakeholders Part A
2500	Ogden	Ashley	--	--	Part 2 PDF, Online Petition Form Letters
2029	O'Hanlon	John	--	--	Part 2 PDF, Online Petition Form Letters
1836	Oium	Annie	--	--	Part 2 PDF, Online Petition Form Letters
1901	Okan	Gertie	--	--	Part 2 PDF, Online Petition Form Letters
2052	OKeefe	Jenna	--	--	Part 2 PDF, Online Petition Form Letters
805	Olesek	Kurt	--	--	Part 3 PDF, Public Part B
1230	Olesek	Kurt	--	--	Part 4 PDF, Urge You Form Letters
1859	Oliver	Alyson	--	--	Part 2 PDF, Online Petition Form Letters
678	Olomon	C.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1415	Olsen	Karl	--	--	Part 4 PDF, Urge You Modified Form Letters
704	Olson	Cathleen	--	--	Part 4 PDF, Save the Fraser River Form Letters
2804	Olson	Eric	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
898	Olson	Harry J.	--	--	Part 1 PDF, Angling Community Form Letters
2800	Olson	Sherry L.	--	--	Part 2 PDF, Online Petition Form Letters
399	O'Mara	Ray	--	--	Part 1 PDF, Angling Community Form Letters
576	ONeil	Bernard	--	--	Part 1 PDF, Crown Jewel Form Letters
2632	O'Neil	Joe	--	--	Part 2 PDF, Online Petition Form Letters
2535	ONeill	Hollis	--	--	Part 2 PDF, Online Petition Form Letters
558	O'Neill	Suzanne	Executive Director	Colorado Wildlife Federation	Part 2 PDF, Organizations/Stakeholders Part A
1516	Oppenlander	John	--	--	Part 4 PDF, Urge You Modified Form Letters
2431	Orr	Marilyn	--	--	Part 2 PDF, Online Petition Form Letters
1808	Orr	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
176	Ortega	Frank	--	--	Part 1 PDF, Angling Community Form Letters
1310	Osborne	Charles	--	--	Part 4 PDF, Urge You Form Letters
415	Osborne	Kathy	--	--	Part 1 PDF, Angling Community Form Letters
1849	O'She	Cathy	--	--	Part 2 PDF, Online Petition Form Letters
2049	O'Shea	Kristi	--	--	Part 2 PDF, Online Petition Form Letters
2390	Oury	Douglas	--	--	Part 2 PDF, Online Petition Form Letters
579	Overmyer	D. Michael	Board of Directors	Coal Creek Canyon Park & Recreation District	Part 1 PDF, Jurisdictions/Municipalities Part A
1125	Owen	Brent	--	--	Part 1 PDF, Colorado Resident Form Letters
1146	Owen	Jamesy	--	--	Part 1 PDF, Colorado Resident Form Letters
998	Owen	Sharene	--	--	Part 2 PDF, Not Adequately Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
971	Owsley	Carla	--	--	Part 1 PDF, Gross Reservoir Form Letters
1092	Owsley	Carla	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1111	Owsley	Carla	--	--	Part 1 PDF, Boulder County Form Letters
1182	Owsley	Carla	--	--	Part 4 PDF, Public Part C
1182	Owsley	Jake	--	--	Part 4 PDF, Public Part C
2181	Pace	Nancy	--	--	Part 2 PDF, Online Petition Form Letters
119	Pacheco	Joe	--	--	Part 3 PDF, Public Part A
410	Pacheco	Joseph	--	--	Part 3 PDF, Public Part A
2186	Packer	Marylane	--	--	Part 2 PDF, Online Petition Form Letters
1961	Pacyga	Mara	--	--	Part 2 PDF, Online Petition Form Letters
2593	Page	Pennie	--	--	Part 2 PDF, Online Petition Form Letters
1597	Palo	Scott	--	--	Part 4 PDF, Urge You Form Letters
1376	Panck	William	--	--	Part 4 PDF, Urge You Form Letters
773	Pandy	Joe	Manager	Granby/Silver Creek Water & Wastewater Authority	Part 1 PDF, Jurisdictions/Municipalities Part C
813	Papandrea	Frank G.	--	--	Part 1 PDF, Angling Community Form Letters
1348	Papich	Bruce	--	--	Part 4 PDF, Urge You Form Letters
2808	Parent	Melanie	--	--	Part 2 PDF, Online Petition Form Letters
2083	Parker	Barbara	--	--	Part 2 PDF, Online Petition Form Letters
2805	Parker	Louise	--	--	Part 2 PDF, Online Petition Form Letters
1907	Parker	Stacey	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
435	Parmley	Emy	--	--	Part 1 PDF, Crown Jewel Form Letters
1027	Parri	David	--	--	Part 4 PDF, Urge You Form Letters
1790	Parsons	Kaityln	--	--	Part 2 PDF, Online Petition Form Letters
2570	Patick	Lynn	--	--	Part 2 PDF, Online Petition Form Letters
1240	Patrick	Garry	--	--	Part 4 PDF, Urge You Form Letters
474	Paul	Stephen E.	President	Greater Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
462	Paul	Steve	President	Greater Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
2261	Paul	Steve	--	--	Part 2 PDF, Online Petition Form Letters
1185	Paul	Cary C.	--	--	Part 4 PDF, Public Part C
1185	Paul, M.D.	Steve D.	--	--	Part 4 PDF, Public Part C
1015	Paulk	Reginald	--	--	Part 4 PDF, Urge You Form Letters
96	Paulk	Steven	--	--	Part 3 PDF, Public Part A
73	Paulsen	Mark	--	--	Part 3 PDF, Public Part A
34	Pavlick	Steve	--	--	Part 3 PDF, Public Part A
1771	Pearce	Perry	Investor Committee Chairman	Colorado Competitive Council	Part 2 PDF, Organizations/Stakeholders Part B
779	Pearlman	Ben	Vice Chair	Boulder County Board of County Commissioners	Part 1 PDF, Jurisdictions/Municipalities Part C
407	Pearson	Ian	--	--	Part 1 PDF, Angling Community Form Letters
2272	Pearson	Ian	--	--	Part 2 PDF, Online Petition Form Letters
2184	Pearson	Jonas	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2175	Pearson	Robert	--	--	Part 2 PDF, Online Petition Form Letters
2090	Pech	Rita	--	--	Part 2 PDF, Online Petition Form Letters
2050	Peeters	Brian	--	--	Part 2 PDF, Online Petition Form Letters
2055	Peeters	Denise	--	--	Part 2 PDF, Online Petition Form Letters
2010	Peeters	Rob	--	--	Part 2 PDF, Online Petition Form Letters
927	Peirce	Jeri	--	--	Part 3 PDF, Public Part B
593	Peirce	Mrs. Roger	--	--	Part 1 PDF, Crown Jewel Form Letters
849	Pelaez	Jennifer	--	--	Part 4 PDF, Save the Fraser River Form Letters
2663	Pelaez	John	--	--	Part 2 PDF, Online Petition Form Letters
2625	Pelaez	Julie	--	--	Part 2 PDF, Online Petition Form Letters
883	Pelton	illegible	--	--	Part 1 PDF, Angling Community Form Letters
268	Pence	Thomas	--	--	Part 1 PDF, Angling Community Form Letters
2004	Penney	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2336	Penny	Dorri	--	--	Part 2 PDF, Online Petition Form Letters
1929	Perez	Rudy	--	--	Part 2 PDF, Online Petition Form Letters
150	Perish	M. M.	--	--	Part 3 PDF, Public Part A
1650	Perkins	Gary T.	--	--	Part 4 PDF, Public Part D
1432	Perkins	William	--	--	Part 4 PDF, Urge You Form Letters
1746	Perlmutter	Ed	Member of Congress	Congress of the United States, House of Representatives	Part 1 PDF, Federal
961	Perrin	D.	--	--	Part 1 PDF, Gross Reservoir Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1090	Perrin	Dave	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1112	Perrin	David L.	--	--	Part 1 PDF, Boulder County Form Letters
2606	Perry	Greg	--	--	Part 2 PDF, Online Petition Form Letters
510	Perry	Michael	Representative	Town of Frisco	Part 1 PDF, Jurisdictions/Municipalities Part A
2539	Petersen	Cat	--	--	Part 2 PDF, Online Petition Form Letters
1821	Petersen	Michelle	--	--	Part 2 PDF, Online Petition Form Letters
322	Peterson	Al	--	--	Part 3 PDF, Public Part A
696	Peterson	Amy	--	--	Part 4 PDF, Save the Fraser River Form Letters
2666	Peterson	Bob	--	--	Part 2 PDF, Online Petition Form Letters
1186	Peterson	Carol J.	--	--	Part 4 PDF, Public Part C
1942	Peterson	Courtney	--	--	Part 2 PDF, Online Petition Form Letters
695	Peterson	David	--	--	Part 4 PDF, Save the Fraser River Form Letters
1056	Peterson	John	--	--	Part 1 PDF, Angling Community Form Letters
667	Peterson	Mike	--	--	Part 4 PDF, Save the Fraser River Form Letters
2458	Peterson	Patty	--	--	Part 2 PDF, Online Petition Form Letters
15	Peterson	Pete	--	--	Part 3 PDF, Public Part A
1186	Peterson	Raymond (Pete) C.	--	--	Part 4 PDF, Public Part C
1651	Peterson	Robert K.	--	--	Part 4 PDF, Public Part D
2399	Peterson	Terry	--	--	Part 2 PDF, Online Petition Form Letters
1071	Peterson, DDS, P.C. (RET)	J.D.	--	--	Part 2 PDF, Organizations/Stakeholders Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1604	Petroy	David	--	--	Part 4 PDF, Urge You Form Letters
1298	Pettine	Chris	--	--	Part 4 PDF, Urge You Form Letters
726	Pfeffer	Anne	--	--	Part 3 PDF, Public Part A
2559	Phaneuf-Reynolds	Leesa	--	--	Part 2 PDF, Online Petition Form Letters
801	Phare	Thomas A.	Director of Public Works	City of Louisville	Part 1 PDF, Jurisdictions/Municipalities Part C
1257	Pharo	Randy	--	--	Part 4 PDF, Urge You Form Letters
1544	Phelan	Bruce	--	--	Part 4 PDF, Urge You Modified Form Letters
1761	Philbrook	Sally	--	--	Part 4 PDF, Public Part E
2091	Phillips	Bryan	--	--	Part 2 PDF, Online Petition Form Letters
2388	Phillips	Daniel	--	--	Part 2 PDF, Online Petition Form Letters
1322	Phillips	H.J.	--	--	Part 4 PDF, Urge You Form Letters
118	Phillips	James	--	--	Part 3 PDF, Public Part A
410	Phillips	Jim	--	--	Part 3 PDF, Public Part A
1726	Pierro	Jynnifer	Mayor	Town of Granby	Part 2 PDF, Jurisdictions/Municipalities Part E
1880	Pilbin	Mary	--	--	Part 2 PDF, Online Petition Form Letters
1072	Pilkington	Anne	--	--	Part 4 PDF, Public Part C
1652	Pilkington	Frank	--	--	Part 4 PDF, Public Part D
588	Pilon	Deborrah G.	District Manager	Willows Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
1810	Pina	Amanda	--	--	Part 2 PDF, Online Petition Form Letters
1478	Pinder	Chris	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2169	Pinkerton	Rusty	--	--	Part 2 PDF, Online Petition Form Letters
2509	Piper	Kaye	--	--	Part 2 PDF, Online Petition Form Letters
540	Piper	Randy	--	--	Part 2 PDF, Organizations/Stakeholders Part A
468	Piske	David F.	--	--	Part 3 PDF, Public Part A
2286	Pizzella Bierig	Virginia	--	--	Part 2 PDF, Online Petition Form Letters
365	Plagman	Larry	--	--	Part 1 PDF, Angling Community Form Letters
1135	Plaskov	Justin	--	--	Part 1 PDF, Colorado Resident Form Letters
339	Plucienkowski	Jay	--	--	Part 1 PDF, Angling Community Form Letters
719	Poff, PhD	N. Leroy	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2145	Pojar	Penne	--	--	Part 2 PDF, Online Petition Form Letters
865	Pokrandt	Jim	Chair	Colorado River Basin Roundtable	Part 4 PDF, State
575	Polis	Jared	Member of Congress (CO-2)	Congress of the United States, House of Representatives, 2nd District, Colorado	Part 1 PDF, Federal
846	Pollmann	Jay	--	--	Part 4 PDF, Save the Fraser River Form Letters
35	Pomerance	Steve	--	--	Part 3 PDF, Public Part A
1011	Ponsor	Mark	--	--	Part 4 PDF, Urge You Form Letters
2158	Poole	Jeff	--	--	Part 2 PDF, Online Petition Form Letters
2267	Popovich	Chris	--	--	Part 2 PDF, Online Petition Form Letters
148	Poppleton	Jayla	--	--	Part 1 PDF, Crown Jewel Form Letters
2077	Porter	Cinde	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
928	Porzak	Glenn E.	General Counsel	Porzak Browning & Bushong LLP on Behalf of the Clinton Ditch & Reservoir Company and the Eagle Park Reservoir Company	Part 2 PDF, Organizations/Stakeholders Part A
1531	Porzak	Glenn E.	General Counsel	Porzak Browning & Bushong LLP, on Behalf of the Clinton Ditch and Reservoir Company and the Eagle Park Reservoir Company	Part 2 PDF, Organizations/Stakeholders Part B
571	Poticha	Myrna	--	Clean Water Action	Part 2 PDF, Organizations/Stakeholders Part A
2011	Potter	Adrianne	--	--	Part 2 PDF, Online Petition Form Letters
2148	Pottle	Jack	--	--	Part 2 PDF, Online Petition Form Letters
158	Pottorff	Austin B.	--	--	Part 2 PDF, Organizations/Stakeholders Part A
169	Powell	Bryan	--	--	Part 1 PDF, Angling Community Form Letters
2291	Powell	Helena	--	--	Part 2 PDF, Online Petition Form Letters
2195	Powell	Travis	--	--	Part 2 PDF, Online Petition Form Letters
1124	Pratt	Laura	--	--	Part 1 PDF, Colorado Resident Form Letters
1436	Prescott	Kim	--	--	Part 4 PDF, Urge You Modified Form Letters
1759	Preston	Brian	--	--	Part 1 PDF, Angling Community Form Letters
212	Pretiss	Paul	--	--	Part 1 PDF, Angling Community Form Letters
332	Preusser	Mel	--	--	Part 1 PDF, Angling Community Form Letters
1369	Preusser	Mel	--	--	Part 4 PDF, Urge You Form Letters
124	Pribylova	Pavla	--	--	Part 1 PDF, Crown Jewel Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1722	Price	Peggy	--	--	Part 4 PDF, Strong Support Form Letters
1508	Priest	Richard	--	--	Part 4 PDF, Urge You Form Letters
1247	Prout	Timothy	--	--	Part 4 PDF, Urge You Form Letters
579	Pryce	Douglas	President, Board of Directors	Coal Creek Canyon Park & Recreation District	Part 1 PDF, Jurisdictions/Municipalities Part A
320	Pucak	George T.	--	--	Part 1 PDF, Angling Community Form Letters
71	Pucic	Sunchana	--	--	Part 3 PDF, Public Part A
1665	Pugmire	Herb	--	--	Part 4 PDF, Public Part D
378	Pukas	Michael	--	--	Part 1 PDF, Angling Community Form Letters
1291	Pyeat	James	--	--	Part 4 PDF, Urge You Form Letters
2082	Qualls	Dale E.	--	--	Part 2 PDF, Online Petition Form Letters
1073	Queen	Michael E.	President	The Consolidated Mutual Water Company	Part 2 PDF, Organizations/Stakeholders Part A
454	Quilling	Larry	Local Chapter President	Boulder Flycasters, Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
732	Quinn	Susan	--	--	Part 3 PDF, Public Part A
245	Rabb, MD	Craig H.	--	--	Part 1 PDF, Angling Community Form Letters
2301	Raczynski	Mike	--	--	Part 2 PDF, Online Petition Form Letters
22	Radcliffe	Steve	--	--	Part 3 PDF, Public Part A
651	Radcliffe	Steve	--	--	Part 4 PDF, Save the Fraser River Form Letters
385	Rader	Nicholas	--	--	Part 1 PDF, Angling Community Form Letters
2219	Rader	Nicholas	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2596	Radlauer	Mark	--	--	Part 2 PDF, Online Petition Form Letters
522	Rady	Pat	--	Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
669	Raegner	Edward	--	--	Part 4 PDF, Save the Fraser River Form Letters
1653	Raffa	Jeanne	--	--	Part 4 PDF, Public Part D
1841	Rakestraw	Rewalt	--	--	Part 2 PDF, Online Petition Form Letters
1312	Rampone	Chris	--	--	Part 4 PDF, Urge You Form Letters
2320	Ramsey	Jeff	--	--	Part 2 PDF, Online Petition Form Letters
1317	Raney	Gary	--	--	Part 4 PDF, Urge You Form Letters
620	Raney	Patricia	Secretary	Greater Grand Lake Shoreline Association	Part 2 PDF, Organizations/Stakeholders Part A
1806	Rantala	Mervi	--	--	Part 2 PDF, Online Petition Form Letters
1490	Rayman	Mark	--	--	Part 4 PDF, Urge You Modified Form Letters
1074	Ready	Glenda	--	--	Part 4 PDF, Public Part C
1797	Reaves	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
295	Rech	Bryan	--	--	Part 1 PDF, Angling Community Form Letters
2120	Recor	Petra	--	--	Part 2 PDF, Online Petition Form Letters
532	Redfield	Gary	--	--	Part 3 PDF, Public Part A
2802	Reed	Chester	--	--	Part 2 PDF, Online Petition Form Letters
2249	Reed	Dawn	--	--	Part 2 PDF, Online Petition Form Letters
758	Reed	Ed	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1389	Reed	Jon	--	--	Part 4 PDF, Urge You Form Letters
2470	Reed	Susan	--	--	Part 2 PDF, Online Petition Form Letters
1930	Rees	Kim	--	--	Part 2 PDF, Online Petition Form Letters
679	Reichert	Jack	--	--	Part 4 PDF, Save the Fraser River Form Letters
2474	Reichert	Tom	--	--	Part 2 PDF, Online Petition Form Letters
465	Reid	Timothy R.	--	--	Part 3 PDF, Public Part A
1952	Reinhard	Jeffrey	--	--	Part 2 PDF, Online Petition Form Letters
1602	Reinhardt	George	--	--	Part 4 PDF, Urge You Form Letters
1028	Reische	William	--	--	Part 4 PDF, Urge You Form Letters
1361	Reiter	Fred	--	--	Part 4 PDF, Urge You Form Letters
282	Relyea	Jason	--	--	Part 1 PDF, Angling Community Form Letters
1025	Relyea	Jason	--	--	Part 4 PDF, Urge You Form Letters
2430	Renfro	Paul	--	--	Part 2 PDF, Online Petition Form Letters
2488	Renninger	Ann	--	--	Part 2 PDF, Online Petition Form Letters
314	Reviello	Keith	--	--	Part 1 PDF, Angling Community Form Letters
2408	Reynolds	Jonathan	--	--	Part 2 PDF, Online Petition Form Letters
2423	Reynolds	Wendy	--	--	Part 2 PDF, Online Petition Form Letters
1888	Rhoads	Don	--	--	Part 2 PDF, Online Petition Form Letters
1888	Rhoads	Kay	--	--	Part 2 PDF, Online Petition Form Letters
997	Riccioli	Deborah	--	--	Part 2 PDF, Not Adequately Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1558	Rice	J. Elbert	--	--	Part 4 PDF, Urge You Modified Form Letters
1654	Rich	Robert S.	--	--	Part 4 PDF, Public Part D
2749	Richardson	Sean P.	--	--	Part 2 PDF, Online Petition Form Letters
1209	Richey	Bill	--	--	Part 4 PDF, Urge You Form Letters
121	Richman	Rebecca	--	--	Part 3 PDF, Public Part A
1408	Rieber	Mike	--	--	Part 4 PDF, Urge You Modified Form Letters
127	Riegel, M.D.	Cindy	--	--	Part 3 PDF, Public Part A
602	Riegel, M.D., ABFP, UCAOA	Cindy	--	--	Part 3 PDF, Public Part A
1560	Rinehart	Clem	--	--	Part 4 PDF, Urge You Modified Form Letters
830	Ritschard	Mike	Secretary	Middle Park Farm Bureau	Part 1 PDF, Jurisdictions/Municipalities Part C
1655	Roat, Jr.	Mr. Glen H.	--	--	Part 4 PDF, Public Part D
1655	Roat, Jr.	Mrs. Glen H.	--	--	Part 4 PDF, Public Part D
521	Roberts	Clint	--	--	Part 3 PDF, Public Part A
2516	Roberts	Clint	--	--	Part 2 PDF, Online Petition Form Letters
1303	Roberts	John	--	--	Part 4 PDF, Urge You Form Letters
1552	Roberts	Mark	--	--	Part 4 PDF, Urge You Modified Form Letters
1656	Roberts	Monte	--	--	Part 4 PDF, Public Part D
2514	Roberts	Morgan	--	--	Part 2 PDF, Online Petition Form Letters
1656	Roberts	Sylvia	--	--	Part 4 PDF, Public Part D
1355	Robins	B.	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2352	Robinson	E. Louise S.	--	--	Part 2 PDF, Online Petition Form Letters
973	Robinson	Marguerite	--	--	Part 1 PDF, Gross Reservoir Form Letters
1096	Robinson	Marguerite	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1103	Robinson	Marguerite	--	--	Part 1 PDF, Boulder County Form Letters
2314	Robinson	Nicole	--	--	Part 2 PDF, Online Petition Form Letters
723	Robinson	Stephen	--	--	Part 2 PDF, Organizations/Stakeholders Part A
981	Robinson	Stephen	--	--	Part 1 PDF, Gross Reservoir Form Letters
1091	Robinson	Stephen	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1109	Robinson	Stephen	--	--	Part 1 PDF, Boulder County Form Letters
2122	Rockwell	Walter	--	--	Part 2 PDF, Online Petition Form Letters
929	Roecker	William R.	District Manager	Crestview Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part D
994	Roemer	Lauribeth	--	--	Part 2 PDF, Not Adequately Form Letters
161	Roesener	Ron	--	--	Part 1 PDF, Angling Community Form Letters
1657	Rogers	Donna	--	--	Part 4 PDF, Public Part D
2322	Rohl	Sherry	--	--	Part 2 PDF, Online Petition Form Letters
2059	Rohl	Steve	--	--	Part 2 PDF, Online Petition Form Letters
1447	Rollins	Ashton	--	--	Part 4 PDF, Urge You Modified Form Letters
1284	Rollins	Bob	--	--	Part 4 PDF, Urge You Form Letters
1075	Roman	Greg	--	--	Part 4 PDF, Public Part C
2439	Roman	Greg	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2439	Roman	Jan	--	--	Part 2 PDF, Online Petition Form Letters
2441	Rome	Mercy	--	--	Part 2 PDF, Online Petition Form Letters
1658	Ropp	Stephanie	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
1728	Rosario	Paul	--	--	Part 2 PDF, Protest Family Form Letters
1727	Rosario	Stephanie	--	--	Part 2 PDF, Protest Family Form Letters
2003	Ross	David	--	--	Part 2 PDF, Online Petition Form Letters
648	Ross	James	--	--	Part 4 PDF, Save the Fraser River Form Letters
11	Ross	Jim	--	--	Part 3 PDF, Public Part A
930	Ross	Norm	--	--	Part 3 PDF, Public Part B
930	Ross	Linda	--	--	Part 3 PDF, Public Part B
58	Rossmiller	Gary	--	--	Part 3 PDF, Public Part A
2262	Ross-Shannon	Brad	--	--	Part 2 PDF, Online Petition Form Letters
2201	Ross-Shannon	Tracey	--	--	Part 2 PDF, Online Petition Form Letters
196	Roth	Chandler	--	--	Part 1 PDF, Angling Community Form Letters
287	Rothenbach	Al	--	--	Part 1 PDF, Angling Community Form Letters
2369	Rountree	Dan	--	--	Part 2 PDF, Online Petition Form Letters
2555	Roushey	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2792	Roushey	William	--	--	Part 2 PDF, Online Petition Form Letters
163	Rowe	Paul	--	--	Part 1 PDF, Angling Community Form Letters
2236	Royall	Jake	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2164	Rozean	Jeff	--	--	Part 2 PDF, Online Petition Form Letters
381	Rubala	Michael J.	--	--	Part 1 PDF, Angling Community Form Letters
859	Rubin	Brian	--	--	Part 1 PDF, Angling Community Form Letters
993	Rudasill	Kathryn	--	--	Part 2 PDF, Not Adequately Form Letters
157	Rudis	Mark A.	--	--	Part 3 PDF, Public Part A
2035	Rudloff	Nevine	--	--	Part 2 PDF, Online Petition Form Letters
284	Rummel	Travis	--	--	Part 1 PDF, Angling Community Form Letters
1778	Rummel	Travis	--	--	Part 2 PDF, Online Petition Form Letters
1444	Rush	Charles	--	--	Part 4 PDF, Urge You Modified Form Letters
2603	Russell	Eric	--	--	Part 2 PDF, Online Petition Form Letters
2205	Russell	Gerald	--	--	Part 2 PDF, Online Petition Form Letters
476	Russell	Jeff	--	--	Part 3 PDF, Public Part A
2434	Russell	Mary	--	--	Part 2 PDF, Online Petition Form Letters
1867	Russell	Michelle	--	--	Part 2 PDF, Online Petition Form Letters
566	Russell	Toni	--	--	Part 1 PDF, Angling Community Form Letters
2044	Ruttenberg	Dane	--	--	Part 2 PDF, Online Petition Form Letters
2729	Ruttenberg	Debra	--	--	Part 2 PDF, Online Petition Form Letters
1475	Ruybal	Isaac	--	--	Part 4 PDF, Urge You Modified Form Letters
2517	Ruzickova	Sarka	--	--	Part 2 PDF, Online Petition Form Letters
2381	Ryall	Jill	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1030	Ryan	Gerald	--	--	Part 4 PDF, Urge You Form Letters
1466	Ryan	Jerry (Gerald)	--	--	Part 4 PDF, Urge You Form Letters
2315	Sadler	Jerry	--	--	Part 2 PDF, Online Petition Form Letters
1950	Saffell	Cyndie	--	--	Part 2 PDF, Online Petition Form Letters
533	Saffell	Dennis	--	--	Part 3 PDF, Public Part A
1939	Saffell	Dennis	--	--	Part 2 PDF, Online Petition Form Letters
1659	Saffell	Dennis R.	--	--	Part 2 PDF, Organizations/Stakeholders Part B
2436	Saffell-Romero	Beth	--	--	Part 2 PDF, Online Petition Form Letters
1476	Saital	Marc	--	--	Part 4 PDF, Urge You Modified Form Letters
2106	Salberg	David	--	--	Part 2 PDF, Online Petition Form Letters
2105	Salberg	Gary	--	--	Part 2 PDF, Online Petition Form Letters
355	Salgado	Manuel	--	--	Part 1 PDF, Boating Petition Form Letters
2740	Salling-Davies	Kelly	--	--	Part 2 PDF, Online Petition Form Letters
1895	Salzberg	Yaniv	--	--	Part 2 PDF, Online Petition Form Letters
1076	Sammons	Chris	--	--	Part 4 PDF, Public Part C
2154	Sammons	Chris	--	--	Part 2 PDF, Online Petition Form Letters
2064	Samuelson	Ray	--	--	Part 2 PDF, Online Petition Form Letters
1921	Samuelson	Richard	--	--	Part 2 PDF, Online Petition Form Letters
1783	Sanchez	Karen	--	--	Part 2 PDF, Online Petition Form Letters
1980	Sand	Adam	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2001	Sanders	David	--	--	Part 2 PDF, Online Petition Form Letters
2355	Sanders	Keith	--	--	Part 2 PDF, Online Petition Form Letters
996	Sanders	Scott D.	--	--	Part 2 PDF, Not Adequately Form Letters
2392	Sands	Beth	--	--	Part 2 PDF, Online Petition Form Letters
1729	Sands	Elizabeth K.	--	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #2 Form Letters
1923	Sands	Neal	--	--	Part 2 PDF, Online Petition Form Letters
1435	Santistevan	J.	--	--	Part 4 PDF, Urge You Modified Form Letters
1062	Sarbin	Sal	--	--	Part 1 PDF, Angling Community Form Letters
616	Sargent	Zach	--	--	Part 1 PDF, Angling Community Form Letters
2203	Saunders	Jason	--	--	Part 2 PDF, Online Petition Form Letters
2437	Saunders	Matt	--	--	Part 2 PDF, Online Petition Form Letters
1536	Saunders	R.	--	--	Part 4 PDF, Urge You Modified Form Letters
1660	Sawyer	Donald	--	--	Part 4 PDF, Public Part D
586	Sayah	Laurelyn	--	--	Part 3 PDF, Public Part A
1328	Sayers	Michael	--	--	Part 4 PDF, Urge You Form Letters
251	Schaefer	Alexander K.	--	--	Part 1 PDF, Angling Community Form Letters
1077	Schafer	Georgia	--	--	Part 4 PDF, Public Part C
1661	Schafer	Georgia	--	--	Part 4 PDF, Public Part D
1662	Schafer	Georgia	--	--	Part 4 PDF, Public Part D
1077	Schafer	Ronald	--	--	Part 4 PDF, Public Part C

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1661	Schafer	Ronald	--	--	Part 4 PDF, Public Part D
1662	Schafer	Ronald	--	--	Part 4 PDF, Public Part D
1762	Scheer	Gordon	--	--	Part 4 PDF, Public Part E
1730	Schemel	David L.	--	--	Part 2 PDF, Protest Family Form Letters
1730	Schemel	Susan J.	--	--	Part 2 PDF, Protest Family Form Letters
32	Schick	Virginia	--	--	Part 3 PDF, Public Part A
2811	Schilhab	Keith	--	--	Part 2 PDF, Online Petition Form Letters
1080	Schill	Sarah Ellen	--	--	Part 4 PDF, Public Part C
734	Schillawski	Richard D.	--	--	Part 3 PDF, Public Part A
1723	Schiller	Lee E.	President	Columbine Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
2682	Schlanger	Adam	--	--	Part 2 PDF, Online Petition Form Letters
431	Schlichting	Dave	--	--	Part 1 PDF, Angling Community Form Letters
1418	Schlosser	Gene	--	--	Part 4 PDF, Urge You Modified Form Letters
25	Schmitt	Rich	--	--	Part 3 PDF, Public Part A
2356	Schneider	Bobby	--	--	Part 2 PDF, Online Petition Form Letters
1249	Schneider	Rudy	--	--	Part 4 PDF, Urge You Form Letters
745	Scholl	Duane	President	Middle Park Water Conservancy District	Part 1 PDF, Jurisdictions/Municipalities Part A
2279	Scholl	Thad	--	--	Part 2 PDF, Online Petition Form Letters
2280	Scholl	Theresa	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
218	Scholton	Gary	--	--	Part 1 PDF, Angling Community Form Letters
2411	Schovan	Kevin	--	--	Part 2 PDF, Online Petition Form Letters
2557	Schowalter	Tim	--	--	Part 2 PDF, Online Petition Form Letters
1007	Schrader	Wayne	--	--	Part 4 PDF, Urge You Form Letters
1663	Schroeder, Ed.D	Fred	--	--	Part 4 PDF, Public Part D
250	Schuessler	David D.	--	--	Part 1 PDF, Angling Community Form Letters
143	Schultz, PhD	Dr. Arnold L.	--	--	Part 1 PDF, Crown Jewel Form Letters
2725	Schweitzer	Erik	--	--	Part 2 PDF, Online Petition Form Letters
2520	Schweitzer	Kelly	--	--	Part 2 PDF, Online Petition Form Letters
1082	Scott	Bob	Hospitality Manager	Grand Lake Lodge	Part 2 PDF, Organizations/Stakeholders Part A
2259	Scott	Leyla	--	--	Part 2 PDF, Online Petition Form Letters
120	Scrimgeour	Tom	--	--	Part 1 PDF, Crown Jewel Form Letters
2142	Sebestyen	Jeremy	--	--	Part 2 PDF, Online Petition Form Letters
1340	Sedillo	J.	--	--	Part 4 PDF, Urge You Form Letters
2651	Seitz	Dustin	--	--	Part 2 PDF, Online Petition Form Letters
884	Sellons	Don	--	--	Part 1 PDF, Angling Community Form Letters
173	Selto	Frank H.	--	--	Part 1 PDF, Angling Community Form Letters
554	Sery	Steven	--	--	Part 3 PDF, Public Part A
554	Sery	Suzan	--	--	Part 3 PDF, Public Part A
187	Shaffer	C. Gordon	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
123	Shaffer	Linda	--	--	Part 1 PDF, Crown Jewel Form Letters
1542	Shallenberger	Mike	--	--	Part 4 PDF, Urge You Modified Form Letters
1251	Shanley	John	--	--	Part 4 PDF, Urge You Form Letters
1142	Shannon	Ashley	--	--	Part 1 PDF, Colorado Resident Form Letters
815	Shapiro	Vesta	--	--	Part 1 PDF, Angling Community Form Letters
2545	Shaw	Becky	--	--	Part 2 PDF, Online Petition Form Letters
931	Shaw	Joan	--	--	Part 3 PDF, Public Part B
931	Shaw	Roger	--	--	Part 3 PDF, Public Part B
2020	Shaw	Roger	--	--	Part 2 PDF, Online Petition Form Letters
1664	Shearin	Lawrence	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
2698	Sheldon	Bob	--	--	Part 2 PDF, Online Petition Form Letters
1228	Shepard	Chris	--	--	Part 4 PDF, Urge You Form Letters
1402	Sherlock	Martin	--	--	Part 4 PDF, Urge You Form Letters
1724	Sherman	Amy	President and CEO	The West Chamber Serving Jefferson County	Part 4 PDF, Strong Support Form Letters
1665	Sherman	Ann	--	--	Part 4 PDF, Public Part D
1966	Sherman	Mike	--	--	Part 2 PDF, Online Petition Form Letters
1330	Sherman	Steve	--	--	Part 4 PDF, Urge You Form Letters
2125	Sherry	Kimberly	--	--	Part 2 PDF, Online Petition Form Letters
1325	Shin	Gerald	--	--	Part 4 PDF, Urge You Form Letters
1519	Shinton	Dick	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1352	Shoning	Paul	--	--	Part 4 PDF, Urge You Form Letters
2654	Shoop	Mary	--	--	Part 2 PDF, Online Petition Form Letters
2453	Shoop	Robert	--	--	Part 2 PDF, Online Petition Form Letters
396	Sibelius	Troy	--	--	Part 1 PDF, Angling Community Form Letters
253	Sica	Jason	--	--	Part 1 PDF, Angling Community Form Letters
804	Sidofsky	Carol	--	--	Part 3 PDF, Public Part B
731	Siefert, Architect, P.C.	Karen	--	--	Part 3 PDF, Public Part A
2119	Sifers	Ashley	--	--	Part 2 PDF, Online Petition Form Letters
1287	Silecchia	Michael	--	--	Part 4 PDF, Urge You Form Letters
2438	Simmonds	Nathan	--	--	Part 2 PDF, Online Petition Form Letters
2328	Simmons	John	--	--	Part 2 PDF, Online Petition Form Letters
2410	Simpson	Vickie	--	--	Part 2 PDF, Online Petition Form Letters
1666	Simpson	Wynne	--	--	Part 4 PDF, Public Part D
2744	Singler	Roxanne	--	--	Part 2 PDF, Online Petition Form Letters
2785	Sittig	Ben	--	--	Part 2 PDF, Online Petition Form Letters
403	Sivess	Andrew	--	--	Part 1 PDF, Angling Community Form Letters
1168	Skibinski	Frank	--	--	Part 2 PDF, Not Adequately Form Letters
210	Skinner	Chris	--	--	Part 1 PDF, Angling Community Form Letters
1403	Skolnick	Mark	--	--	Part 4 PDF, Urge You Form Letters
2727	Slack	Ken	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2223	Slattery	James	--	--	Part 2 PDF, Online Petition Form Letters
2305	Slaughter	Melynda	--	--	Part 2 PDF, Online Petition Form Letters
1814	Slettedahl	Nathan	--	--	Part 2 PDF, Online Petition Form Letters
2370	Sly	Richard	--	--	Part 2 PDF, Online Petition Form Letters
69	Smallen	Larry	--	--	Part 3 PDF, Public Part A
2103	Smith	Bernadette	--	--	Part 2 PDF, Online Petition Form Letters
2363	Smith	Christine	--	--	Part 2 PDF, Online Petition Form Letters
2194	Smith	Danielle	--	--	Part 2 PDF, Online Petition Form Letters
1943	Smith	Doug	--	--	Part 2 PDF, Online Petition Form Letters
272	Smith	Jared	--	--	Part 1 PDF, Angling Community Form Letters
1949	Smith	Kerri	--	--	Part 2 PDF, Online Petition Form Letters
397	Smith	Larry J.	--	--	Part 1 PDF, Angling Community Form Letters
2783	Smith	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
2544	Smith	Mazie	--	--	Part 2 PDF, Online Petition Form Letters
1188	Smith	Mike	Director	City of Westminster, Department of Public Works & Utilities	Part 2 PDF, Jurisdictions/Municipalities Part E
580	Smith	Robert	--	--	Part 1 PDF, Angling Community Form Letters
895	Smith	Roger K.	--	--	Part 1 PDF, Angling Community Form Letters
194	Smith	Shawn	--	--	Part 1 PDF, Angling Community Form Letters
87	Smith	Steve	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2580	Smith	Tajna	--	--	Part 2 PDF, Online Petition Form Letters
774	Smith	Tod J.	Chairman	The Law Office of Tod J. Smith on Behalf of the Eldorado Springs Planning Committee, South Boulder Creek Subcommittee	Part 1 PDF, Jurisdictions/Municipalities Part C
2549	Smith	Will	--	--	Part 2 PDF, Online Petition Form Letters
2330	Smolleck	Christian	--	--	Part 2 PDF, Online Petition Form Letters
2042	Smolleck	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
2502	Snedeker	John J.	--	--	Part 2 PDF, Online Petition Form Letters
1497	Snowden	Curt	--	--	Part 4 PDF, Urge You Form Letters
357	Sokol	Jon P.	--	--	Part 1 PDF, Angling Community Form Letters
685	Soles	Dennis	--	--	Part 4 PDF, Save the Fraser River Form Letters
1667	Soles	Dennis	--	--	Part 4 PDF, Public Part D
573	Soles	Katie	--	--	Part 3 PDF, Public Part A
1898	Soles	William	--	--	Part 2 PDF, Online Petition Form Letters
564	Sommerfeld	Alan	--	--	Part 1 PDF, Angling Community Form Letters
577	Sommerfeld	Alan	--	--	Part 3 PDF, Public Part A
577	Sommerfeld	Karen	--	--	Part 3 PDF, Public Part A
1208	Somora, Jr.	Stephen	--	--	Part 4 PDF, Urge You Form Letters
2794	Sonntag	Jenna	--	--	Part 2 PDF, Online Petition Form Letters
149	Soper	Robin	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1334	Sorrentino	Kenneth	--	--	Part 4 PDF, Urge You Form Letters
313	South	Stan	--	--	Part 1 PDF, Angling Community Form Letters
1084	Southway	Cindy		--	Part 4 PDF, Public Part C
2129	Southway	Cindy	--	--	Part 2 PDF, Online Petition Form Letters
2588	Southwell	Kara	--	--	Part 2 PDF, Online Petition Form Letters
2519	Sowards	George	--	--	Part 2 PDF, Online Petition Form Letters
54	Spear	Todd	--	--	Part 3 PDF, Public Part A
177	Speer	Greg	--	--	Part 1 PDF, Angling Community Form Letters
2428	Speer	Greg	--	--	Part 2 PDF, Online Petition Form Letters
1551	Speer, M.D.	Gregory	--	--	Part 4 PDF, Urge You Form Letters
2598	Spence	Bill	--	--	Part 2 PDF, Online Petition Form Letters
794	Spiro	Gretchen	--	--	Part 3 PDF, Public Part B
636	Spooner	Glenda	--	--	Part 4 PDF, Save the Fraser River Form Letters
488	Sprague	Richard	--	--	Part 3 PDF, Public Part A
1412	Sproles	James	--	--	Part 4 PDF, Urge You Modified Form Letters
1009	Sprowl	Christopher	--	--	Part 4 PDF, Urge You Form Letters
2773	Spurgiesz	Bruce	--	--	Part 2 PDF, Online Petition Form Letters
2655	Spurgin Hussey	Emma	--	--	Part 2 PDF, Online Petition Form Letters
495	Squillace	Mark	--	--	Part 3 PDF, Public Part A
2646	Sroka	Bill	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2631	Sroka	Karin	--	--	Part 2 PDF, Online Petition Form Letters
1815	Stahl	Cathy	--	--	Part 2 PDF, Online Petition Form Letters
1668	Stahl	K. John	--	--	Part 4 PDF, Public Part D
589	Stahl	Mike	--	--	Part 1 PDF, Angling Community Form Letters
1507	Stansaled	Ross	--	--	Part 4 PDF, Urge You Modified Form Letters
1564	Stansbury	Charles	--	--	Part 4 PDF, Urge You Modified Form Letters
1495	Stark	George	--	--	Part 4 PDF, Urge You Form Letters
179	Staub	Erik	--	--	Part 1 PDF, Angling Community Form Letters
2770	Steele	David	--	--	Part 2 PDF, Online Petition Form Letters
1189	Stefanski	Mike	--	--	Part 1 PDF, Colorado Resident Form Letters
1824	Steineck	Richard	--	--	Part 2 PDF, Online Petition Form Letters
1830	Steineck	Valerie	--	--	Part 2 PDF, Online Petition Form Letters
116	Stengel	Tony	--	--	Part 3 PDF, Public Part A
2433	Stephan	Christopher	--	--	Part 2 PDF, Online Petition Form Letters
1269	Stephenson	Geoffrey	--	--	Part 4 PDF, Urge You Form Letters
1274	Steube	Loyal	Director	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
227	Stevens	Brian	--	--	Part 1 PDF, Angling Community Form Letters
598	Stevens	Gene	--	--	Part 1 PDF, Angling Community Form Letters
1378	Stevens	Gene	--	--	Part 4 PDF, Urge You Form Letters
2678	Stevenson	Lynn	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2703	Stevenson	Nora	--	--	Part 2 PDF, Online Petition Form Letters
1150	Stewart	David A.	--	--	Part 4 PDF, Public Part C
480	Stewart	Don	--	--	Part 3 PDF, Public Part A
832	Stewart	Jennifer	--	--	Part 3 PDF, Public Part B
500	Stewart	Robert F.	Regional Environmental Officer	United States Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance	Part 1 PDF, Federal
505	Stiegelmeier	Karn	County Commissioner	Summit County	Part 1 PDF, Jurisdictions/Municipalities Part A
1336	Stiegler	Gary	--	--	Part 4 PDF, Urge You Form Letters
2713	Stier	Scot	--	--	Part 2 PDF, Online Petition Form Letters
2524	Stimson	Cheryl	--	--	Part 2 PDF, Online Petition Form Letters
783	Stock	Erica	Outreach Director	Colorado Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
1425	Stock	Erica	--	--	Part 4 PDF, Urge You Modified Form Letters
2364	Stoffels	Jill	--	--	Part 2 PDF, Online Petition Form Letters
1669	Stolhand	Jerry	--	--	Part 1 PDF, Gross Reservoir Expansion Form Letters
2028	Stoltz	Amanda	--	--	Part 2 PDF, Online Petition Form Letters
1540	Stone	Bill	--	--	Part 4 PDF, Urge You Modified Form Letters
2611	Stone	Kellie	--	--	Part 2 PDF, Online Petition Form Letters
1924	Stone	Susan	--	--	Part 2 PDF, Online Petition Form Letters
1818	Storm	April	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1819	Storm	Justin	--	--	Part 2 PDF, Online Petition Form Letters
2419	Stowell	IDavid	--	--	Part 2 PDF, Online Petition Form Letters
2693	Strain	Ei	--	--	Part 2 PDF, Online Petition Form Letters
2227	Straney	Shannon	--	--	Part 2 PDF, Online Petition Form Letters
2098	Strate	Edith	--	--	Part 2 PDF, Online Petition Form Letters
2569	Stratis	James	--	--	Part 2 PDF, Online Petition Form Letters
1886	Stratton	Steven	--	--	Part 2 PDF, Online Petition Form Letters
1879	Stratton	Sue	--	--	Part 2 PDF, Online Petition Form Letters
1099	Strauss	Ann	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1115	Strauss	Ann	--	--	Part 1 PDF, Boulder County Form Letters
978	Strauss	Ann H.	--	--	Part 1 PDF, Gross Reservoir Form Letters
966	Strauss	D. Pieter	--	--	Part 1 PDF, Gross Reservoir Form Letters
1106	Strauss	D. Pieter	--	--	Part 1 PDF, Boulder County Form Letters
1190	Strauss	D. Pieter	--	--	Part 4 PDF, Public Part C
1498	Straw	Dr. John	--	--	Part 4 PDF, Urge You Form Letters
1431	Strawn	Brian	--	--	Part 4 PDF, Urge You Form Letters
1670	Stricklin	Ann	--	--	Part 4 PDF, Public Part E
1204	Striebich	Chris	--	--	Part 4 PDF, Urge You Form Letters
1576	Striebich	Chris	--	--	Part 4 PDF, Urge You Modified Form Letters
1603	Strijek	Claudia	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
874	Stringer	James	--	--	Part 1 PDF, Angling Community Form Letters
1566	Stringer	James	--	--	Part 4 PDF, Urge You Modified Form Letters
988	Strode	Brittany A.	--	--	Part 2 PDF, Not Adequately Form Letters
1165	Strode	Jennifer	--	--	Part 2 PDF, Not Adequately Form Letters
555	Strode	Rob	--	--	Part 3 PDF, Public Part A
1360	Strom	J.	--	--	Part 4 PDF, Urge You Form Letters
88	Strom	Jeff	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2479	Strom	Margaret	--	--	Part 2 PDF, Online Petition Form Letters
2056	Strong	David	--	--	Part 2 PDF, Online Petition Form Letters
595	Strong	Ryan J.	--	--	Part 1 PDF, Angling Community Form Letters
383	Strouse	Mike	--	--	Part 1 PDF, Angling Community Form Letters
516	Stuart	Nancy	--	--	Part 3 PDF, Public Part A
1760	Stull	Christopher	--	--	Part 1 PDF, Angling Community Form Letters
457	Suffin	Jill	--	--	Part 3 PDF, Public Part A
2537	Suffin	Jill	--	--	Part 2 PDF, Online Petition Form Letters
656	Suffin	Mikki	--	--	Part 4 PDF, Save the Fraser River Form Letters
2571	Sugaski	Laura	--	--	Part 2 PDF, Online Petition Form Letters
2547	Sullivan	Kristin	--	--	Part 2 PDF, Online Petition Form Letters
1207	Sullivan	Mike	--	--	Part 4 PDF, Urge You Form Letters
1280	Sullivan	Paul	--	--	Part 4 PDF, Urge You Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
375	Sumerlin	Doreen	--	--	Part 1 PDF, Angling Community Form Letters
808	Sundance	Bonnie	--	--	Part 3 PDF, Public Part B
1012	Suniga	Michael	--	--	Part 4 PDF, Urge You Form Letters
1890	Sussman	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2575	Suter	John	--	--	Part 2 PDF, Online Petition Form Letters
1904	Sutherland	Sarah	--	--	Part 2 PDF, Online Petition Form Letters
2591	Svoboda	Megan	--	--	Part 2 PDF, Online Petition Form Letters
64	Swaney	James A.	--	--	Part 3 PDF, Public Part A
1320	Swanson	Thomas	--	--	Part 4 PDF, Urge You Form Letters
1373	Sweeney	Mike	--	--	Part 4 PDF, Urge You Form Letters
878	Sweeney	Seann	--	--	Part 1 PDF, Angling Community Form Letters
2039	Swift	William	--	--	Part 2 PDF, Online Petition Form Letters
1282	Switzer	Kathryn	--	--	Part 4 PDF, Urge You Form Letters
1795	Switzer	Meredith	--	--	Part 2 PDF, Online Petition Form Letters
133	Sylvester	Richard	--	--	Part 1 PDF, Crown Jewel Form Letters
252	Taff	Daniell	--	--	Part 1 PDF, Angling Community Form Letters
1889	Talbert	Sam	--	--	Part 2 PDF, Online Petition Form Letters
778	Tallal	Jill	--	--	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
1982	Tallal	Jill	--	--	Part 2 PDF, Online Petition Form Letters
1847	Talley	Richard	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1671	Tallman	Mark	--	--	Part 4 PDF, Public Part E
1064	Tanis	Michael	--	--	Part 1 PDF, Angling Community Form Letters
621	Tapp	Anne Mariah	--	--	Part 3 PDF, Public Part A
84	Tarr	Chris	--	--	Part 3 PDF, Public Part A
84	Tarr	Lisa	--	--	Part 3 PDF, Public Part A
863	Tarr, Jr.	Cedric W.	--	--	Part 1 PDF, Angling Community Form Letters
174	Tauer	Eric	--	--	Part 1 PDF, Angling Community Form Letters
2153	Taussig	Cameron	--	--	Part 2 PDF, Online Petition Form Letters
1246	Taylor	Earl	--	--	Part 4 PDF, Urge You Form Letters
824	Taylor	LeRoy	--	--	Part 3 PDF, Public Part B
869	Taylor	Ron	--	--	Part 1 PDF, Angling Community Form Letters
1350	Taylor	Ronald	--	--	Part 4 PDF, Urge You Form Letters
2417	Taylor	Wayne	--	--	Part 2 PDF, Online Petition Form Letters
932	Taylor, P.E., PLS	Robert D.	Public Works Director	City of Glendale	Part 2 PDF, Jurisdictions/Municipalities Part D
2719	Teitsma	Elizabeth	--	--	Part 2 PDF, Online Petition Form Letters
1140	Tejada	Beale	--	--	Part 1 PDF, Colorado Resident Form Letters
2176	Telander	Toni	--	--	Part 2 PDF, Online Petition Form Letters
2704	Terpenning	Laura	--	--	Part 2 PDF, Online Petition Form Letters
1268	Teter	Eugene	--	--	Part 4 PDF, Urge You Form Letters
642	Teverbaugh	Marilyn	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2657	Thayer	Alison	--	--	Part 2 PDF, Online Petition Form Letters
130	Thoe	Amy	--	--	Part 1 PDF, Crown Jewel Form Letters
1837	Thomas	John	--	--	Part 2 PDF, Online Petition Form Letters
1302	Thomas	Larry	--	--	Part 4 PDF, Urge You Form Letters
2769	Thomas	Patricia	--	--	Part 2 PDF, Online Petition Form Letters
497	Thomason	Michael	--	--	Part 3 PDF, Public Part A
2633	Thompson	Ann	--	--	Part 2 PDF, Online Petition Form Letters
460	Thompson	Bill	--	Middle Park Stockgrowers	Part 2 PDF, Organizations/Stakeholders Part A
1848	Thompson	Carol Ann	--	--	Part 2 PDF, Online Petition Form Letters
138	Thompson	Jeff	--	--	Part 1 PDF, Crown Jewel Form Letters
493	Thompson	Jeff	--	--	Part 3 PDF, Public Part A
806	Thompson	Jeff	--	--	Part 3 PDF, Public Part B
2016	Thompson	Michael	--	--	Part 2 PDF, Online Petition Form Letters
2601	Thompson	Peg	--	--	Part 2 PDF, Online Petition Form Letters
469	Thompson	Ron	--	--	Part 3 PDF, Public Part A
2375	Thompson	Steven Mark	--	--	Part 2 PDF, Online Petition Form Letters
611	Thompson	Wendy	--	--	Part 3 PDF, Public Part A
1732	Thurman	Ayla	--	--	Part 2 PDF, Protest Family Form Letters
1733	Thurman	Jewel	--	--	Part 2 PDF, Protest Family Form Letters
1731	Thurman	Keith	--	--	Part 2 PDF, Protest Family Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1734	Thurman	Kira	--	--	Part 2 PDF, Protest Family Form Letters
729	Thyfault	Harold R.	President	South-East Englewood Water District	Part 1 PDF, Jurisdictions/Municipalities Part A
2425	Tibbetts	D.K.	--	--	Part 2 PDF, Online Petition Form Letters
1927	Tibbs	Neili	--	--	Part 2 PDF, Online Petition Form Letters
204	Tieman	Michael	--	--	Part 1 PDF, Angling Community Form Letters
441	Timmons	Jock	--	--	Part 1 PDF, Angling Community Form Letters
1518	Tinkle	Tom	--	--	Part 4 PDF, Urge You Modified Form Letters
21	Tipton	Jill	--	--	Part 3 PDF, Public Part A
1255	Tita	Kristin	--	--	Part 4 PDF, Urge You Form Letters
27	Tod	Marty	--	--	Part 3 PDF, Public Part A
1953	Tod	Marty	--	--	Part 2 PDF, Online Petition Form Letters
1486	Toft	Jerry	--	--	Part 4 PDF, Urge You Form Letters
1979	Tomchek	Andrew	--	--	Part 2 PDF, Online Petition Form Letters
1906	Tompkins	Terry	--	--	Part 2 PDF, Online Petition Form Letters
779	Toor	Will	Commissioner	Boulder County Board of County Commissioners	Part 1 PDF, Jurisdictions/Municipalities Part C
392	Torres	Alberto	--	--	Part 1 PDF, Crown Jewel Form Letters
1973	Toyne	Karen	--	--	Part 2 PDF, Online Petition Form Letters
359	Trammell	John	--	--	Part 1 PDF, Angling Community Form Letters
373	Trammell	John	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
885	Tramutt	Jacey	--	--	Part 1 PDF, Angling Community Form Letters
2038	Travers	Stephen	--	--	Part 2 PDF, Online Petition Form Letters
1509	Traxinger	Dave	--	--	Part 4 PDF, Urge You Modified Form Letters
1703	Treves	Jean Francois	--	--	Part 4 PDF, Public Part E
1703	Treves	Ursula	--	--	Part 4 PDF, Public Part E
707	Troccoli	Lynda	--	--	Part 4 PDF, Save the Fraser River Form Letters
2127	Troccoli	Lynda	--	--	Part 2 PDF, Online Petition Form Letters
708	Troccoli	Vince	--	--	Part 4 PDF, Save the Fraser River Form Letters
2397	Trost	Shane	--	--	Part 2 PDF, Online Petition Form Letters
1289	Trout	Robert	--	--	Part 4 PDF, Urge You Form Letters
2714	Troutman	Dennis	--	--	Part 2 PDF, Online Petition Form Letters
2	Trujillo	Al	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1426	Trujillo	Brandon	--	--	Part 4 PDF, Urge You Modified Form Letters
1427	Trujillo	Charles	--	--	Part 4 PDF, Urge You Modified Form Letters
1399	Turenne	Guy	--	--	Part 4 PDF, Urge You Form Letters
934	Turnbull	Kathleen B.	--	--	Part 3 PDF, Public Part B
630	Turnbull	Marilyn	--	--	Part 4 PDF, Save the Fraser River Form Letters
629	Turnbull	W.	--	--	Part 4 PDF, Save the Fraser River Form Letters
934	Turnbull	William N.	--	--	Part 3 PDF, Public Part B
1984	Turner	Dave	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
490	Turner	Derek	--	--	Part 3 PDF, Public Part A
1195	Turner	Derek L.	--	--	Part 4 PDF, Public Part D
1005	Turner	Marshall	--	--	Part 4 PDF, Urge You Form Letters
1483	Turner	Paul M.	--	--	Part 4 PDF, Urge You Modified Form Letters
2022	Turner	Sara	--	--	Part 2 PDF, Online Petition Form Letters
2065	Ulrich	Jery L.	--	--	Part 2 PDF, Online Petition Form Letters
2421	Ulrich	Klaus	--	--	Part 2 PDF, Online Petition Form Letters
2786	Ulveling	Honor	--	--	Part 2 PDF, Online Petition Form Letters
508	Underbrink Curran	Lurline	County Manager	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
542	Underbrink Curran	Lurline	County Manager	Grand County	Part 1 PDF, Jurisdictions/Municipalities Part A
1582	Underwood	David	--	--	Part 4 PDF, Urge You Form Letters
597	Unrau-Goring	Brent	--	--	Part 1 PDF, Crown Jewel Form Letters
421	Updegraff	Jeffrey	--	--	Part 1 PDF, Angling Community Form Letters
1226	Urban	Dan	--	--	Part 4 PDF, Urge You Form Letters
2193	Uren	John	--	--	Part 2 PDF, Online Petition Form Letters
1992	Valan	Carrie	--	--	Part 2 PDF, Online Petition Form Letters
2294	Valente	Susan	--	--	Part 2 PDF, Online Petition Form Letters
1672	Valente	VJ	--	--	Part 4 PDF, Public Part E
426	Valuck	Robert	--	--	Part 1 PDF, Angling Community Form Letters
666	Van Bockern	Bruce	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
670	Van Bockern	Gail	--	--	Part 4 PDF, Save the Fraser River Form Letters
202	Van Buskirk	Rick	--	--	Part 1 PDF, Angling Community Form Letters
2605	Van Cleave	Mark	--	--	Part 2 PDF, Online Petition Form Letters
2273	Van Herwaarden	Eric	--	--	Part 2 PDF, Online Petition Form Letters
2019	Van Horn	Kari	--	--	Part 2 PDF, Online Petition Form Letters
90	Van Ness	Tom	--	--	Part 3 PDF, Public Part A
2348	Van Oss	Oakley	--	--	Part 2 PDF, Online Petition Form Letters
1915	Vance	Alyssa	--	--	Part 2 PDF, Online Petition Form Letters
1151	VanDervort	Linda	--	--	Part 4 PDF, Public Part C
2599	VanMeter	R.K.	--	--	Part 2 PDF, Online Petition Form Letters
1057	Varland	Teresa K.	--	--	Part 1 PDF, Angling Community Form Letters
1487	Vaughn	Jerry	--	--	Part 4 PDF, Urge You Modified Form Letters
299	Vaughn	Jerry T.	--	--	Part 1 PDF, Angling Community Form Letters
2471	Veenstra	Jared	--	--	Part 2 PDF, Online Petition Form Letters
935	Veeser	Lynn	--	--	Part 3 PDF, Public Part B
46	Venezia	Howard	--	--	Part 3 PDF, Public Part A
1839	Venezia	Howard	--	--	Part 2 PDF, Online Petition Form Letters
1673	Veron	Dennis	--	--	Part 4 PDF, Public Part E
420	Vick	N. Kent	--	--	Part 1 PDF, Angling Community Form Letters
2466	Vidergar	Cyril	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2457	Vidergar	Stephanie	--	--	Part 2 PDF, Online Petition Form Letters
1852	Viola	Angela	--	--	Part 2 PDF, Online Petition Form Letters
2697	Visconti	Amy	--	--	Part 2 PDF, Online Petition Form Letters
2053	vM	Den	--	--	Part 2 PDF, Online Petition Form Letters
1674	Voelker	John	--	--	Part 4 PDF, Public Part E
254	Voggesser	Garrit	--	--	Part 1 PDF, Angling Community Form Letters
2469	Volk	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2137	Volt	Mark	--	--	Part 2 PDF, Online Petition Form Letters
1218	Von Bernuth	Kirk	--	--	Part 4 PDF, Urge You Form Letters
2747	Vondracek	Anne	--	--	Part 2 PDF, Online Petition Form Letters
1306	Vongontard	Adi	--	--	Part 4 PDF, Urge You Form Letters
31	Vorndam	Margaret E.	--	--	Part 3 PDF, Public Part A
348	Voth	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
2207	Voxburg	Joan	--	--	Part 2 PDF, Online Petition Form Letters
1775	Voxland	Elisa	Member	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
1152	Waddington	David	--	--	Part 4 PDF, Public Part C
511	Wade	Mattie	--	--	Part 2 PDF, Organizations/Stakeholders Part A
2689	Wade	Sandra	--	--	Part 2 PDF, Online Petition Form Letters
531	Wageck	Michael R.	Manager	Winter Park Water & Sanitation District	Part 1 PDF, Jurisdictions/Municipalities Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
773	Wageck	Michael R.	Chairman	Granby/Silver Creek Water & Wastewater Authority	Part 1 PDF, Jurisdictions/Municipalities Part C
1548	Wageck	Michael R.	District Manager	Winter Park Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part E
1441	Wagner	Gregg	--	--	Part 4 PDF, Urge You Modified Form Letters
1772	Wagner	Mark J.	Attorney	Hill & Robbins, P.C., Representing the Town of Silverthorne	Part 2 PDF, Jurisdictions/Municipalities Part E
1442	Wagner	Teresa	--	--	Part 4 PDF, Urge You Modified Form Letters
350	Wakefield	Bryan	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1019	Walck	Gregory	--	--	Part 4 PDF, Urge You Form Letters
1019	Walck	Sherryl	--	--	Part 4 PDF, Urge You Form Letters
990	Waldron	Barbara	--	--	Part 2 PDF, Not Adequately Form Letters
1926	Waldron	Jessica	--	--	Part 2 PDF, Online Petition Form Letters
817	Waldron	Lloyd	--	--	Part 1 PDF, Angling Community Form Letters
1914	Waldron	Marian	--	--	Part 2 PDF, Online Petition Form Letters
594	Waldron	Marian A.	Member	Grand County Board of Realtors	Part 2 PDF, Organizations/Stakeholders Part A
236	Walford	Cameron	--	--	Part 1 PDF, Angling Community Form Letters
1916	Walker	Bruce	--	--	Part 2 PDF, Online Petition Form Letters
788	Walker	Donald	--	--	Part 4 PDF, Save the Fraser River Form Letters
164	Walker	Frank B.	--	--	Part 1 PDF, Angling Community Form Letters
358	Walker	Jack T.	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
1741	Walker	John D.	Attorney for Granby Sanitation District	Cazier, McGowan & Walker	Part 2 PDF, Jurisdictions/Municipalities Part E
2331	Walker	K.	--	--	Part 2 PDF, Online Petition Form Letters
711	Walker	Marcia	--	--	Part 4 PDF, Save the Fraser River Form Letters
2659	Walker	Marcia	--	--	Part 2 PDF, Online Petition Form Letters
831	Walker	Mary	--	--	Part 3 PDF, Public Part B
2782	Walker	Paul	--	--	Part 2 PDF, Online Petition Form Letters
2334	Walsh	Susie	--	--	Part 2 PDF, Online Petition Form Letters
1196	Waltemath	Tamra K.	--	--	Part 4 PDF, Public Part D
2367	Walz	Mel	--	--	Part 2 PDF, Online Petition Form Letters
2157	Wantuck	Danielle	--	--	Part 2 PDF, Online Petition Form Letters
1127	Ward	Thom	--	--	Part 1 PDF, Colorado Resident Form Letters
1429	Warden	Bill	--	--	Part 4 PDF, Urge You Form Letters
1858	Wardzinski	James	--	--	Part 2 PDF, Online Petition Form Letters
479	Warner	Julie	--	--	Part 1 PDF, Angling Community Form Letters
1470	Warner	Rob	--	--	Part 4 PDF, Urge You Form Letters
2467	Warren	Mark	--	--	Part 2 PDF, Online Petition Form Letters
765	Wasco	Melanie	--	United States Environmental Protection Agency, Region 8, 8EPR-N	Part 1 PDF, Federal
95	Waterman Reed	Susan	--	--	Part 3 PDF, Public Part A
2624	Watson	Julia Grace	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2680	Watts	Frank	--	--	Part 2 PDF, Online Petition Form Letters
2680	Watts	Jane	--	--	Part 2 PDF, Online Petition Form Letters
42	Watts, BSME, CCDM	Frank	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1133	Weaver	Scott	--	--	Part 1 PDF, Colorado Resident Form Letters
1675	Weber	Dorothy	--	--	Part 4 PDF, Public Part E
1029	Weber	Tony	--	--	Part 4 PDF, Urge You Form Letters
1285	Weddle	William	--	--	Part 4 PDF, Urge You Form Letters
2124	Weeden	Marshall	--	--	Part 2 PDF, Online Petition Form Letters
652	Wegerer	Robert J.	--	--	Part 4 PDF, Save the Fraser River Form Letters
1154	Wehmeyer	Debbie	--	--	Part 4 PDF, Public Part C
626	Wehmeyer	KD	--	--	Part 4 PDF, Save the Fraser River Form Letters
1153	Wehmeyer	Kent	--	--	Part 4 PDF, Public Part C
1857	Wehunt	Lisa	--	--	Part 2 PDF, Online Petition Form Letters
1917	Weisbach	Nell	--	--	Part 2 PDF, Online Petition Form Letters
1256	Weisberg	E.	--	--	Part 4 PDF, Urge You Form Letters
823	Weiss	David	--	--	Part 1 PDF, Angling Community Form Letters
1331	Weiss	David	--	--	Part 4 PDF, Urge You Form Letters
2191	Welcome	Caren	--	--	Part 2 PDF, Online Petition Form Letters
1192	Welk	Michael	--	--	Part 2 PDF, Organizations/Stakeholders Part A
264	Wells	Captain Chris	--	--	Part 1 PDF, Angling Community Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
305	Wells	G. Gray	--	--	Part 1 PDF, Angling Community Form Letters
2285	Wells	Gail	--	--	Part 2 PDF, Online Petition Form Letters
1406	Wells	Scott	--	--	Part 4 PDF, Urge You Modified Form Letters
1121	Welsing	Ross	--	--	Part 4 PDF, Strong Support Form Letters
2630	Welter	Steve	--	--	Part 2 PDF, Online Petition Form Letters
110	Wenk	Bill	--	--	Part 3 PDF, Public Part A
388	Wenzl	Lauren B.	--	--	Part 1 PDF, Angling Community Form Letters
220	Werlinich	Samuel	--	--	Part 1 PDF, Angling Community Form Letters
2131	Wermers	John	--	--	Part 2 PDF, Online Petition Form Letters
1786	West	Andrea	--	--	Part 2 PDF, Online Petition Form Letters
2023	West	Benjamin	--	--	Part 2 PDF, Online Petition Form Letters
1134	West	Nick	--	--	Part 1 PDF, Colorado Resident Form Letters
936	Westerlund	Jon	President	Winter Park Ranch Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part D
1155	Westerlund	Jon	--	--	Part 4 PDF, Public Part C
1382	Westfeldt	Wallace	--	--	Part 4 PDF, Urge You Form Letters
699	Westlake	W. R.	--	--	Part 4 PDF, Save the Fraser River Form Letters
2252	Westmark	Jon	--	--	Part 2 PDF, Online Petition Form Letters
1324	Wheaton	Leonard	--	--	Part 4 PDF, Urge You Form Letters
1156	Wheeler	Lorence D.	--	--	Part 4 PDF, Public Part C
1411	Wheeler	Richard W.	--	--	Part 4 PDF, Urge You Modified Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
507	White	Barney	Water Counsel	Summit County	Part 1 PDF, Jurisdictions/Municipalities Part A
2401	White	Julie	--	--	Part 2 PDF, Online Petition Form Letters
735	White	Kaylea	Vice President	Kinney Creek Ranch, LLC	Part 2 PDF, Organizations/Stakeholders Part A
1874	White	Rick	--	--	Part 2 PDF, Online Petition Form Letters
901	White	Saundra	--	--	Part 1 PDF, Angling Community Form Letters
2009	White	Shelby	--	--	Part 2 PDF, Online Petition Form Letters
1677	Whiteside	Sara	--	--	Part 4 PDF, Public Part E
1677	Whiteside	Stephen	--	--	Part 4 PDF, Public Part E
571	Whiting	Amelia (Mely) S.	--	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
837	Whiting	Amelia (Mely) S.	Legal Counsel	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
484	Whiting	Mely	--	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
485	Whiting	Mely	--	Trout Unlimited	Part 2 PDF, Organizations/Stakeholders Part A
592	Whitley	Aubrey	--	--	Part 1 PDF, Angling Community Form Letters
1864	Wiberg	Kajsa	--	--	Part 2 PDF, Online Petition Form Letters
2684	Wichtoski	Chuck	--	--	Part 2 PDF, Online Petition Form Letters
963	Wiegand	Gretchen	--	--	Part 1 PDF, Gross Reservoir Form Letters
1088	Wiegand	Gretchen	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1105	Wiegand	Gretchen	--	--	Part 1 PDF, Boulder County Form Letters
937	Wilcox	Douglas	--	--	Part 3 PDF, Public Part B
787	Wilcox	Douglas C.	--	--	Part 4 PDF, Save the Fraser River Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2444	Wilcox	Mariko	--	--	Part 2 PDF, Online Petition Form Letters
1210	Wilcox	Marty	--	--	Part 4 PDF, Urge You Form Letters
1293	Wilcox	Steven	--	--	Part 4 PDF, Urge You Form Letters
2493	Wilder	Al	--	--	Part 2 PDF, Online Petition Form Letters
2475	Wilder	Susan	--	--	Part 2 PDF, Online Petition Form Letters
2688	Wilderman	Sarah	--	--	Part 2 PDF, Online Petition Form Letters
115	Wilkinson	Erik	--	--	Part 3 PDF, Public Part A
1517	Wilkinson	Erik	--	--	Part 4 PDF, Urge You Modified Form Letters
489	Wilks	Anita	--	--	Part 3 PDF, Public Part A
622	Wilks	Anita M.	--	--	Part 3 PDF, Public Part A
1199	Wilks	Anita M.	--	--	Part 4 PDF, Public Part D
17	Williams	Aneta	--	--	Part 3 PDF, Public Part A
1157	Williams	Bruce J.	--	--	Part 4 PDF, Public Part C
154	Williams	Cecil W.	--	--	Part 3 PDF, Public Part A
2728	Williams	Marsha	--	--	Part 2 PDF, Online Petition Form Letters
154	Williams	Martha E.	--	--	Part 3 PDF, Public Part A
55	Williams	Nathan	--	--	Part 2 PDF, Organizations/Stakeholders Part A
1928	Williams	Robert	--	--	Part 2 PDF, Online Petition Form Letters
2300	Williams	Roger	--	--	Part 2 PDF, Online Petition Form Letters
122	Williams	Susan	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2092	Williams	Walker	--	--	Part 2 PDF, Online Petition Form Letters
2215	Williams	Zeb	--	--	Part 2 PDF, Online Petition Form Letters
1419	Willis	A.J.	--	--	Part 4 PDF, Urge You Modified Form Letters
623	Willock	Travis	--	--	Part 1 PDF, Angling Community Form Letters
1463	Wilson	Don	--	--	Part 4 PDF, Urge You Modified Form Letters
890	Wilson	Kurt	--	--	Part 1 PDF, Angling Community Form Letters
1158	Wilson	Linda	--	--	Part 4 PDF, Public Part C
889	Wilson	Lynn	--	--	Part 1 PDF, Angling Community Form Letters
2218	Wilson	Renee	--	--	Part 2 PDF, Online Petition Form Letters
2130	Wilson	Tina	--	--	Part 2 PDF, Online Petition Form Letters
2429	Wilson	Walter	--	--	Part 2 PDF, Online Petition Form Letters
975	Wilson	Wendy	--	--	Part 1 PDF, Gross Reservoir Form Letters
1097	Wilson	Wendy	--	--	Part 1 PDF, Coal Creek Canyon Form Letters
1114	Wilson	Wendy	--	--	Part 1 PDF, Boulder County Form Letters
1595	Winchester	Mark	--	--	Part 4 PDF, Urge You Form Letters
2060	Winder	Carol	--	--	Part 2 PDF, Online Petition Form Letters
2340	Winkel	Adrianna	--	--	Part 2 PDF, Online Petition Form Letters
1194	Winkelhake	Erika	--	--	Part 4 PDF, Public Part C
1678	Winter	Virginia L.	--	--	Part 2 PDF, Organizations/Stakeholders Part B
1794	Wippel	Stephanie	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2552	Wisecup	Steve	--	--	Part 2 PDF, Online Petition Form Letters
1031	Witt, Sr.	C. Edwin	--	--	Part 4 PDF, Urge You Form Letters
484	Wockner	Gary	--	Clean Water Action	Part 2 PDF, Organizations/Stakeholders Part A
485	Wockner	Gary	--	Clean Water Action	Part 2 PDF, Organizations/Stakeholders Part A
571	Wockner	Gary	--	Save The Poudre: Poudre Steve Waterkeeper	Part 2 PDF, Organizations/Stakeholders Part A
796	Wockner	Gary	--	Clean Water Action	Part 2 PDF, Organizations/Stakeholders Part A
680	Wofford	Mitchell	--	--	Part 4 PDF, Save the Fraser River Form Letters
2795	Wold	Alison	--	--	Part 2 PDF, Online Petition Form Letters
2798	Wold	Cullen	--	--	Part 2 PDF, Online Petition Form Letters
2757	Wold	Hildreth	--	--	Part 2 PDF, Online Petition Form Letters
2615	Wold	Hollis	--	--	Part 2 PDF, Online Petition Form Letters
2664	Wold	Joe	--	--	Part 2 PDF, Online Petition Form Letters
2565	Wolf	Asha	--	--	Part 2 PDF, Online Petition Form Letters
2585	Wolf	Carol	--	--	Part 2 PDF, Online Petition Form Letters
746	Wolf	Darlene	--	--	Part 1 PDF, Angling Community Form Letters
750	Wolf	Robert	--	--	Part 1 PDF, Angling Community Form Letters
2111	Wolfe	Devonna	--	--	Part 2 PDF, Online Petition Form Letters
848	Wolfe	Stan	--	--	Part 4 PDF, Save the Fraser River Form Letters
986	Wolford	Dolores J.	--	--	Part 2 PDF, Not Adequately Form Letters
985	Wolford	Renee	--	--	Part 2 PDF, Not Adequately Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2343	Wolter	Jean	--	--	Part 2 PDF, Online Petition Form Letters
713	Wolter	Jean K.	--	Grand County Board of Realtors, Inc.	Part 1 PDF, Grand County Board of Realtors #1 Form Letters
2465	Womack	Fran	--	--	Part 2 PDF, Online Petition Form Letters
1599	Wong	Chris	--	--	Part 4 PDF, Urge You Form Letters
688	Wood	C.	--	--	Part 4 PDF, Save the Fraser River Form Letters
390	Wood	Corin A.	--	--	Part 3 PDF, Public Part A
681	Wood	John	--	--	Part 4 PDF, Save the Fraser River Form Letters
1159	Wood	Lance	--	--	Part 4 PDF, Public Part C
2376	Woodrow	Scott	--	--	Part 2 PDF, Online Petition Form Letters
1679	Woods	Donald R.	--	--	Part 4 PDF, Public Part E
2550	Workowski	Marissa	--	--	Part 2 PDF, Online Petition Form Letters
198	Wormer	Jeff	--	--	Part 1 PDF, Angling Community Form Letters
637	Wormington	Jessica	--	--	Part 4 PDF, Save the Fraser River Form Letters
1420	Wright	Brad	--	--	Part 4 PDF, Urge You Modified Form Letters
938	Wright	David	President	Castlewood Water & Sanitation District	Part 2 PDF, Jurisdictions/Municipalities Part D
380	Wuestenberg	Robert	--	--	Part 1 PDF, Angling Community Form Letters
2675	Wyatt	Aja	--	--	Part 2 PDF, Online Petition Form Letters
1193	Wyatt	B.A.	President, Board of Directors	Valley Water District	Part 2 PDF, Jurisdictions/Municipalities Part E
513	Wyatt	Lane	--	--	Part 3 PDF, Public Part A

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
291	Wynne	Sean P.	--	--	Part 1 PDF, Angling Community Form Letters
1955	Wyse	Joni	--	--	Part 2 PDF, Online Petition Form Letters
2533	Wysmyk	Christine	--	--	Part 2 PDF, Online Petition Form Letters
201	Yanoski	Steve	--	--	Part 1 PDF, Angling Community Form Letters
1829	Yaussi	Shawna	--	--	Part 2 PDF, Online Petition Form Letters
2532	Yeats	David A.	--	--	Part 2 PDF, Online Petition Form Letters
97	Yeoman	Bill	--	--	Part 3 PDF, Public Part A
581	Yoder	Kevin	--	--	Part 1 PDF, Angling Community Form Letters
1686	Yokooji	Cynthia A.	--	--	Part 4 PDF, Public Part E
1160	Yokooji	Elden J.	--	--	Part 4 PDF, Public Part C
2026	Yoo	Tracey	--	--	Part 2 PDF, Online Petition Form Letters
1400	Yoshida	Ken	--	--	Part 4 PDF, Urge You Form Letters
66	Young	Brian	--	--	Part 3 PDF, Public Part A
330	Young	Brian	--	--	Part 1 PDF, Angling Community Form Letters
2641	Young	Brian	--	--	Part 2 PDF, Online Petition Form Letters
1680	Young	Brian D.	--	--	Part 4 PDF, Public Part E
1735	Young	John	--	--	Part 4 PDF, Public Part E
1951	Young	John	--	--	Part 2 PDF, Online Petition Form Letters
66	Young	Stephanie	--	--	Part 3 PDF, Public Part A
2288	Zaitz	Diane	--	--	Part 2 PDF, Online Petition Form Letters

Table N-1 (continued)
Index of Moffat Project Commenters on the DEIS

Comment #	Commenter Last Name	Commenter First Name	Title	Entity	Part # PDF, Report Name
2188	Zaitz	Kent	--	--	Part 2 PDF, Online Petition Form Letters
2736	Zalocha	Peter	--	--	Part 2 PDF, Online Petition Form Letters
1957	Zander	Denise	--	--	Part 2 PDF, Online Petition Form Letters
1956	Zander	John	--	--	Part 2 PDF, Online Petition Form Letters
1161	Zastrow	Ben G.	--	--	Part 4 PDF, Public Part C
1212	Zautke	Dr. William	--	--	Part 4 PDF, Urge You Form Letters
578	Zerbib	Michelle	--	--	Part 1 PDF, Crown Jewel Form Letters
1681	Ziebe	Mike	--	--	Part 4 PDF, Public Part E
1593	Zietz, Jr.	Carl	--	--	Part 4 PDF, Urge You Form Letters
1024	Zietz, Sr.	Fred	--	--	Part 4 PDF, Urge You Form Letters
1512	Zimmarer	Dennis	--	--	Part 4 PDF, Urge You Modified Form Letters
1533	Zimmerman	Greg	--	--	Part 4 PDF, Urge You Modified Form Letters
1521	Zink	Whitney	--	--	Part 4 PDF, Urge You Modified Form Letters
1232	Zogg	Paul	--	Law Office of Paul Zogg	Part 2 PDF, Organizations/Stakeholders Part B
207	Zuboy	James	--	--	Part 1 PDF, Angling Community Form Letters
1688	Zubricky	Tony	--	--	Part 4 PDF, Public Part E
942	Zwick	Melanie	--	--	Part 3 PDF, Public Part B

Notes:
-- = not applicable
DEIS = Draft Environmental Impact Statement

Angling Community Form Letters

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
ANGLING COMMUNITY FORM LETTER — STANDARD		
[The Angling Community Standard Form Letter shown here on page 1 was submitted by all the commenters listed below.] Comment #159 Jim Cannon Comment #160 Jeff Arbogast Comment #161 Ron Roesener Comment #162 Joe A. Cannon Comment #163 Paul Rowe Comment #164 Frank B. Walker Comment #165 Rick Bennight Comment #166 John D. Edelen Comment #167 Gary W. Godden Comment #168 Luke Bever	As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers.	***Form Letter Comment #572-10*** *(ID 4429)**:*** *As a member of Colorado's angling community,* **Response #572-10:** The U.S. Army Corps of Engineers (Corps) notes the comment. ***Form Letter Comment #572-3*** *(ID 823)**:*** *I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to:* **Response #572-3:** Prior to making decisions on the proposed Moffat Collection System Project (Moffat Project or Project), the Corps will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA). ***Form Letter Comment #572-9*** *(ID 829)**:*** *Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin.* **Response #572-9:** Additional water quality analysis has been performed on the Fraser River and the Three Lakes area. Please refer to Final Environmental Impact Statement (FEIS) Sections 4.6.2 and 5.2.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #169 Bryan Powell Comment #170 Andrew Lowell Comment #171 Alan Mishell Comment #172 Elaine Collins Comment #174 Eric Tauer Comment #175 James Little Comment #176 Frank Ortega Comment #177 Greg Speer Comment #180 Erik Lindberg Comment #181 Rick Hooley Comment #182 John Bronn Comment #184 Marc E. Maassen Comment #186 Mike Lischer		***Form Letter Comment #572-7*** *(ID 828)**:*** *Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit;* **Response #572-7:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cubic feet per second (cfs) versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7 percent (%). At the Fraser River below the confluence with Crooked Creek, which is downstream of all Board of Water Commissioner's (Denver Water's) diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in

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Comment Information	Comment	Comments and Responses
Comment #187 C. Gordon Shaffer Comment #188 Tim Moret Comment #189 Philip B. Durian Comment #191 Gene Farrar Comment #192 Hayden Mellsop Comment #193 Brendan Bowler Comment #194 Shawn Smith Comment #195 Ian Havlick Comment #196 Chandler Roth Comment #197 Robert Malling Comment #199 Stephen R. Chuckra Comment #200 Shawn Morrissey Comment #201 Steve Yanoski		the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to FEIS Sections 4.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way (ROW) agreements with the U.S. Forest Service (USFS). FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments

Comment Information	Comment	Comments and Responses
Comment #202 Rick Van Buskirk Comment #203 Keith Festag Comment #204 Michael Tieman Comment #205 William Gray Comment #206 Paul Bourgeois Comment #207 James Zuboy Comment #208 Michael Garner Comment #209 Fred Miller Comment #210 Chris Skinner Comment #211 Stephen Kandell Comment #212 Paul Pretiss Comment #214 Newton F. Logan Comment #215 Don Cushing		included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the Draft Environmental Impact Statement (DEIS) and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Form Letter Comment #572-2*** *(ID 822)**:*** *Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility;* **Response #572-2:** The Fraser River would continue to support a cold water trout fishery if the Project is implemented. FEIS Section 4.6.11 has been modified to include

Comment Information	Comment	Comments and Responses
Comment #217 Karina Black Comment #218 Gary Scholton Comment #219 R. Kelley Brenneman Comment #220 Samuel Werlinich Comment #221 Richard Hill Comment #223 Robert Fraunfelder Comment #224 Dr. Fabio Lepori Comment #226 Michael Moore Comment #228 Scott Farling Comment #229 Andrew Johann, DDS, MS, PC Comment #230 Rebecca Goff Comment #231 Charles Bachhuber Comment #232 Dave Gonnion		additional discussion of cumulative impacts for aquatic resources. The Council on Environmental Quality (CEQ) interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the Proposed Action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the Proposed Action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River Basin and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the Platte and Colorado Simulation Model (PACSM) to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic

Comment Information	Comment	Comments and Responses
Comment #233 Jeff Lowell Comment #234 Charlie Horn Comment #236 Cameron Walford Comment #237 John W. Gale Comment #239 Seth Harris Comment #240 Charles Best Comment #244 John E. Loftis Comment #245 Craig H. Rabb, MD Comment #246 Sharon Lance Comment #247 David Berry Comment #248 Mark R. Cole Comment #249 Scott Ashbaugh Comment #251 Alexander K. Schaefer		photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows in the Fraser and Williams Fork river basins diverted by Denver Water. This would allow the reader to compare the percentage of natural flows with past diversions at each of Denver Water's diversion locations modeled in PACSM under Current Conditions, Full Use of the Existing System, and for each of the Moffat Project alternatives. FEIS Chapter 4 as revised to present the total environmental effects of the Moffat Project alternatives in combination with other reasonably foreseeable future actions (RFFAs). FEIS Section 4.2.1 FEIS discusses the past water-based actions in the streams in the Project area. FEIS Chapter 4 includes a comparison of Current Conditions and Full Use with a Project Alternative (2032) as described below. • Current Conditions (2006) reflects the Denver Water-related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations under the Current Conditions (2006) scenario. Denver Water's existing average annual demand is 285,000 acre-feet per year (AF/yr). • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, Denver Water's average annual demand is 363,000 AF/yr and the Moffat Project would be providing 18,000 AF/yr of new firm yield.

Comment Information	Comment	Comments and Responses
Comment #252 Daniell Taff Comment #253 Jason Sica Comment #254 Garrit Voggesser Comment #255 Jay A. Murray Comment #256 Mark R. Miller Comment #257 Todd Fehr Comment #259 Tom Minyard Comment #260 Bruce Herbert Comment #261 John Demmon Comment #262 Matt MacDonald Comment #263 Evan Lichtenfels Comment #266 Mark DeBonville Comment #267 Richard Brush		Total environmental effects due to future Moffat Project diversions in combination with other reasonably foreseeable actions was based on a comparison with modeled Current Conditions, which reflect Denver Water diversions that are indicative of the current administration of the river, demands, infrastructure, and operations. ***Form Letter Comment #572-5*** *(ID 826)**:*** *Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions;* **Response #572-5:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand

Comment Information	Comment	Comments and Responses
Comment #268 Thomas Pence Comment #271 Peter Kieliszewskii Comment #272 Jared Smith Comment #273 Eric Frevert Comment #274 Sibel -- Comment #275 Dennis F. Cook Comment #277 Roe Emery II Comment #278 Mark Godsey Comment #283 Tim Cleaver Comment #287 Al Rothenbach Comment #289 Naum Nasif Comment #290 Thomas L. Fiester, Ph.D. Comment #291 Sean P. Wynne		projection for Denver Water. Full Use of Denver Water's existing system reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032). ***Form Letter Comment #572-8*** *(ID 824)**:*** *Provide adequate mitigation requirements as conditions of any approved permit.* **Response #572-8:** Please see the response to Comment ID 825. ***Form Letter Comment #572-1*** *(ID 821)**:*** *Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use.* **Response #572-1:** Denver Water does not have the legal authority to

Comment Information	Comment	Comments and Responses
Comment #292 Tim Gossage Comment #293 Peter Judkins Comment #294 Gene L. Morton Comment #295 Bryan Rech Comment #296 Ryan Moehring Comment #298 Jim Gibson Comment #299 Jerry T. Vaughn Comment #300 Susan Maxwell Comment #303 Gary Giallela Comment #304 Rick Eckl Comment #305 G. Gray Wells Comment #307 Brad Moutfort Comment #310 Sharon and Stan Hayes		direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations. ***Form Letter Comment #572-4*** *(ID 825)**:*** *It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem.* **Response #572-4:** Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit.

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Comment Information	Comment	Comments and Responses
Comment #313 Stan South Comment #316 Steven Korrell Comment #317 Brian Deem Comment #319 Joshua S. Hastings Comment #320 George T. Pucak Comment #324 Mara Kohler Comment #325 Jos. Billig Comment #327 Andy Lamborne Comment #329 Marc Barnwell Comment #330 Brian Young Comment #331 Gerald Christensen Comment #334 Dick and Marilyn Lorimor Comment #335 Rob Nixon		***Form Letter Comment #572-6*** *(ID 827)**:*** *I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers.* **Response #572-6:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
Comment #337 Terry R. Barrett Comment #339 Jay Plucienkowski Comment #340 Elisabeth Gritschke Comment #341 Leland E. Evans Comment #343 Eben D. Grace Comment #344 Ron Altman Comment #345 Dustin Mastro Comment #347 Mark and Pamela Moret Comment #351 Alex Doherty Comment #356 Elisha Bartlett Comment #358 Jack T. Walker Comment #360 Sean Hoban Comment #362 Allen E. Lynch		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #364 David Cox Comment #365 Larry Plagman Comment #366 Max Charbonneau Comment #369 Kendall Henry Comment #371 Larry Farin Comment #374 Larry Drabek Comment #378 Michael Pukas Comment #379 Bob Asmuth Comment #381 Michael J. Rubala Comment #382 Bruce D. Giese Comment #383 Mike Strouse Comment #384 Fred Munson Comment #385 Nicholas Rader		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #386 John Mosesso Comment #387 Bill -- Comment #393 Tyler Drengberg Comment #396 Troy Sibelius Comment #397 Larry J. Smith Comment #400 Gerald Geiger Comment #401 Joan Edmonds Comment #402 Roy Ferguson Comment #404 Duff Lacy Comment #406 Rick Matsumoto Comment #409 M. Hanke Comment #411 Alex M. Beck Comment #412 James G. Kennedy		

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Comment Information	Comment	Comments and Responses
Comment #415 Kathy Osborne Comment #416 Wayne M. Kosloske Comment #421 Jeffrey Updegraff Comment #423 David Mosier Comment #426 Robert Valuck Comment #432 Michael R. Brown Comment #434 Willard Bissell Comment #436 Robyn L. Ceurvorst Comment #439 Gregory H. Horsfield, CPA Comment #441 Jock Timmons Comment #443 Mike Malec Comment #444 John P. Frazee Comment #447 Bill and Elizabeth Foster		

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Comment Information	Comment	Comments and Responses
Comment #448 Walter D. Babcock Comment #449 Adam Long Comment #475 John Avey Comment #479 Julie Warner Comment #559 Fred Beardsley Comment #562 Jeanne Held-Warmkessel Comment #563 Tiffany Bates Comment #565 David Dunkleberger Comment #566 Toni Russell Comment #567 Duane Hutchinson Comment #580 Robert Smith Comment #581 Kevin Yoder Comment #583 Kathy Mikol		

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Comment Information	Comment	Comments and Responses
Comment #584 Miles B. Miller Comment #585 Chris Fontanez Comment #589 Mike Stahl Comment #592 Aubrey Whitley Comment #598 Gene Stevens Comment #599 Marcia Hertz Comment #601 Ryan Matt Comment #604 Jacquelyn Jampolsky Comment #606 Erica Chavez Comment #607 Madelaine Maior Comment #608 Kit Coddington Comment #616 Zach Sargent Comment #623 Travis Willock		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #741 David Menapace Comment #746 Darlene Wolf Comment #748 Diana Liles Comment #749 Neil Dvorak Comment #750 Robert Wolf Comment #755 Robert DiFrancesco Comment #756 James Curfman Comment #757 Allyn Kratz Comment #758 Ed Reed Comment #762 Kevin Jones Comment #812 Philip Beranato Comment #813 Frank G. Papandrea Comment #815 Vesta Shapiro		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #817 Lloyd Waldron Comment #818 Joyce Carpenter Comment #819 Bill Janowsky Comment #820 Jean A. Kiehm Comment #821 Ron Acee Comment #822 Rick Hammel Comment #823 David Weiss Comment #855 Joe Butler Comment #856 Cullen Emsing Comment #859 Brian Rubin Comment #860 Fred H. Eller Comment #861 Henry B. Ledyard Comment #862 illegible illegible		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #863 Cedric W. Tarr, Jr. Comment #869 Ron Taylor Comment #871 Chris H. Lugenbill Comment #872 Charles Grosshans Comment #873 -- -- [redacted] Comment #874 James Stringer Comment #875 K. Leonard Comment #877 Paul Drake Comment #878 Seann Sweeney Comment #879 illegible illegible Comment #880 Tom Hunt Comment #881 C.R. Keane Comment #882 Carolyn Miller		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #883 illegible Pelton Comment #884 Don Sellons Comment #885 Jacey Tramutt Comment #886 Jim Logterman Comment #887 Andy Gross Comment #888 Larry D. Livingston Comment #889 Lynn Wilson Comment #890 Kurt Wilson Comment #891 Larry Gaddis Comment #892 John Gordon Comment #893 John Celis Comment #894 Jack Hunter Comment #895 Roger K. Smith		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #896 Jerry A. Dale Comment #897 Anthony A. King Comment #898 Harry J. Olson Comment #899 Robert Makatura Comment #900 illegible illegible Comment #901 Saundra White Comment #902 Rod Davis Comment #903 Stephen Hock Comment #904 Alan Jones Comment #1619 Shaun Conner Comment #1751 Brendan Ashby Comment #1752 Tim Carter Comment #1753 Linda Cook		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1754 Joe Gallo Comment #1755 Hannah Hansen Comment #1756 Dave Hernden Comment #1757 Heather Holloway Comment #1758 Rob Nash Comment #1759 Brian Preston Comment #1760 Christopher Stull		

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
ANGLING COMMUNITY FORM LETTER — UNIQUE		
Comment #173 Frank H. Selto	From: [redacted] Sent: Wednesday, February 10, 2010 4:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Use of Upper Colorado River Basin water February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I personnally use the upper Colorado basin regularly for hiking, skiing, and especially fly fishing. I hope that this marvelous resource will be available to my children and their children. This seems a much wiser use of scarce and likely scarcer water in this basin than siphoning it off for more blue-grass lawns in the Denver metro area.	***Unique Comment #173-1*** *(ID 2812)**:*** *I personally use the upper Colorado basin regularly for hiking, skiing, and especially fly fishing. I hope that this marvelous resource will be available to my children and their children. This seems a much wiser use of scarce and likely scarcer water in this basin than siphoning it off for more blue-grass lawns in the Denver metro area.* **Response #173-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Sincerely Frank H Selto [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #178 Dino --	From: [redacted] Sent: Wednesday, February 10, 2010 4:10 PM To: MOFFAT.EIS@usace.army.mil Subject: (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit Public Comment February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please remember what people from around the WORLD know of Colorado. Some of the best fishing and mountain activities in the U.S. Sincerely	***Unique Comment #178-10*** *(ID 2813)**:*** *Please remember what people from around the WORLD know of Colorado. Some of the best fishing and mountain activities in the U.S.* **Response #178-10:** The Corps notes the comment.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Dino [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #179 Erik Staub	From: [redacted] Sent: Wednesday, February 10, 2010 4:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I think the reason many Coloradans live here is for the natural beauty and recreational opportunities offered on the public lands. We are at or over the point where the watershed and wild lands are being sacrificed and building more diversion projects does nothing to deal with irrigation, over population or land use issues..	***Unique Comment #179-10*** *(ID 3012)**:*** *I think the reason many Coloradans live here is for the natural beauty and recreational opportunities offered on the public lands. We are at or over the point where the watershed and wild lands are being sacrificed and building more diversion projects does nothing to deal with irrigation, over population or land use issues.* **Response #179-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Erik Staub [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #183 Jeff Gibson	From: [redacted] Sent: Wednesday, February 10, 2010 4:40 PM To: MOFFAT.EIS@usace.army.mil Subject: keep our rivers healthy February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please do the right thing for Colorado and keep it special Sincerely Jeff Gibson [redacted]	***Unique Comment #183-10*** *(ID 3013)**:*** *Please do the right thing for Colorado and keep it special.* **Response #183-10:** The Corps notes the comment.

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Comment Information	Comment	Comments and Responses
	[redacted]	

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Comment Information	Comment	Comments and Responses
Comment #190 Scott Kerkmans	From: [redacted] Sent: Wednesday, February 10, 2010 5:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please don't ignore this vital issue. As an avid outdoorsman, I know most Denver residents live here because of the ample outdoor opportunities we have in places like the upper Colorado and Fraser River Basins. Please help our non-developed locations and our citizens.	***Unique Comment #190-10*** *(ID 3014)**:*** *Please don't ignore this vital issue. As an avid outdoorsman, I know most Denver residents live here because of the ample outdoor opportunities we have in places like the upper Colorado and Fraser River Basins. Please help our non-developed locations and our citizens.* **Response #190-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Scott Kerkmans [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #198 Jeff Wormer	From: [redacted] Sent: Wednesday, February 10, 2010 6:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Dam Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit Public Comment February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. The existing water supply can be managed much more effectively. Locals have been fighting for years to provide a better flow regime, containing both flushing flows and a base minimum flow for South Boulder Creek downstream of Gross Reservoir. The water supply in Gross Reservoir has been sufficient to provide this better flow regime but it has been neglected. It is now being	***Unique Comment #198-10*** *(ID 3016)**:*** *The existing water supply can be managed much more effectively. Locals have been fighting for years to provide a better flow regime, containing both flushing flows and a base minimum flow for South Boulder Creek downstream of Gross Reservoir. The water supply in Gross Reservoir has been sufficient to provide this better flow regime but it has been neglected. It is now being used as a leveraging tool to approve the expansion project. This action is considered by many locals as a slap in the face. An increase in storage in Gross Reservoir also creates an increased risk of life loss to residents and recreationists downstream of the dam. In addition, the probability of failure for numerous potential dam failure modes will increase with the increase in reservoir loading; especially during the first filling condition.* **Response #198-10:** Denver Water indicated it and other groups have worked over the years to improve the aquatic resources in South Boulder Creek. A current agreement between Denver Water and the City of Boulder, which allows Boulder to store water in Gross Reservoir for environmental purposes, has never been used because the timing of available reservoir space and Boulder's use of priority water rights have not coincided. As part of mitigation proposed for the Moffat Project, Denver Water and the cities of Boulder and Lafayette developed dedicated space for environmental purposes (a 5,000 acre-foot permanent, year-round Environmental Pool). This additional storage would be filled with water provided by the cities of Boulder and Lafayette, primarily for augmenting low flows in the section of South Boulder Creek from the South Boulder Diversion Dam to the confluence of Boulder Creek.

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	used as a leveraging tool to approve the expansion project. This action is considered by many locals as a slap in the face. An increase in storage in Gross Reservoir also creates an increased risk of life loss to residents and recreationists downstream of the dam. In addtion, the probability of failure for numerous potential dam failure modes will increase with the increase in reservoir loading; especially during the first filling condition. The real issue is population control. Deal with it another way. When is enough, enough. I believe this project is too much. Thanks for the time. Sincerely Jeff Wormer [redacted]	Although Denver Water has a 7 cfs (or the natural flow) bypass requirement downstream of the Diversion Dam, the 7 cfs bypass by Denver Water can be (and is) diverted by other downstream water users. The water released from the Environmental Pool, however, would be protected from diversions by other water rights because it is a specific delivery of water to a downstream water user. Refer to DEIS Appendix M for a discussion of the Environmental Pool. Routine Federal- and State-imposed dam safety inspections are performed on the existing Gross Dam. Similarly, dam safety inspections and analyses would be conducted for an enlarged Gross Reservoir during final design. Where appropriate, general safety features were incorporated into the conceptual dam designs used for the Environmental Impact Statement (EIS) impact analysis. For example, Section 2.3.2.1 states: “In order to satisfy current dam safety criteria, the dam raise would necessitate an increased spillway capacity, improved dam safety condition, and would require the construction of a service spillway. The spillway could be located in the dam crest, a topographic saddle south of the dam or along the right abutment of the dam or some combination (Figure 2-3).” Denver Water would design the dam enlargement in accordance with the Colorado Rules and Regulations for Dam Safety and Dam Construction and current engineering practices, and it would be subject to a series of design reviews by Denver Water, the Colorado State Engineers Office (SEO), the Federal Energy Regulatory Commission (FERC), and an independent review panel made up of expert dam engineers approved by FERC. FERC and the SEO conduct annual inspections of the existing Gross Dam and FERC requires that an Independent Safety Inspection be conducted by an

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		outside third-party consultant every five years. Denver Water's Dam Safety staff also conducts a formal inspection of Gross dam every year, and the Denver Water Engineering Manager of Dam Safety conducts periodic spot inspections. Additionally, Denver Water would update its current Emergency Action Plan (EAP), required by FERC and the SEO to minimize the risk of loss of life and property damage when potential emergency conditions threaten the structural integrity of a dam. The EAP describes procedures to: • Identify unusual and unlikely conditions that may endanger the dam • Initiate remedial actions to prevent or minimize the downstream impacts of a dam failure • Initiate emergency actions to warn downstream residents of impending or actual failure of the dam. The EAP provides a detailed description of the communications protocol such as who needs to be notified and what areas are likely to be flooded, among other details, in the highly unlikely event of a dam failure. Plan participants include the Boulder County Office of Emergency Management, Boulder County Sheriff, Boulder police and fire departments, Lafayette Police Department, Colorado State Police, State of Colorado Division of Emergency Management, National Weather Service, and many others. This plan is exercised yearly and a formal tabletop and functional exercise is conducted with downstream emergency personnel every five years.

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		Unique Comment #198-11 *(ID 3015)**:*** *The real issue is population control. Deal with it another way. When is enough, enough. I believe this project is too much. Thanks for the time.* **Response #198-11:** The Corps notes the comment.

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Comment Information	Comment	Comments and Responses
Comment #213 Barbara Luneau	From: [redacted] Sent: Wednesday, February 10, 2010 8:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. You will see the points in this letter many times, and they are valid, science-based petitions. Throughout our state's history, water has been a contentious issue. Now is the time that we take this opportunity as a community to carefully and considerately pursue all the options for conservation, improving efficiency, and protecting what is becoming an	***Unique Comment #213-10*** *(ID 3017)**:*** *You will see the points in this letter many times, and they are valid, science-based petitions. Throughout our state's history, water has been a contentious issue. Now is the time that we take this opportunity as a community to carefully and considerately pursue all the options for conservation, improving efficiency, and protecting what is becoming an increasingly fragile resource. These actions are crucial to our future and generations to come as Coloradoans that can freely enjoy the recreational and lifestyle opportunities that our state offers.* **Response #213-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in

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Comment Information	Comment	Comments and Responses
	increasingly fragile resource. These actions are crucial to our future and generations to come as Coloradoans that can freely enjoy the recreational and lifestyle opportunities that our state offers. Sincerely Barbara Luneau [redacted]	demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2.

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Comment Information	Comment	Comments and Responses
Comment #216 John G. Goad	From: [redacted] Sent: Wednesday, February 10, 2010 9:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please carefully consider the long-term consequences of your actions and recommendations for the use of any water in our state. We need to ensure our grandchildren can experience our state's beauty in the same manner as we have. Sincerely	***Unique Comment #216-10*** *(ID 3018)**:*** *Please carefully consider the long-term consequences of your actions and recommendations for the use of any water in our state. We need to ensure our grandchildren can experience our state's beauty in the same manner as we have.* **Response #216-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	John G. Goad [redacted]	

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Comment #222 Matthew Bates	From: [redacted] Sent: Wednesday, February 10, 2010 11:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please don't drain the river Sincerely Matthew Bates	***Unique Comment #222-1*** *(ID 3019)**:*** *Please don't drain the river.* **Response #222-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #225 Bill Langley	From: [redacted] Sent: Thursday, February 11, 2010 2:00 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I truly believe that rivers are one of the most outstanding resources that we have, and that water in the river is worth far more than water on to a Front Range lawn. I hope you agree.	***Unique Comment #225-10*** *(ID 3020)**:*** *I truly believe that rivers are one of the most outstanding resources that we have, and that water in the river is worth far more than water on to a Front Range lawn. I hope you agree.* **Response #225-10:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2.

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	Sincerely Bill Langley [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #227 Brian Stevens	From: [redacted] Sent: Thursday, February 11, 2010 6:00 AM To: MOFFAT.EIS@usace.army.mil Subject: Upper Colorado River--RE: Permit Application NOW-2002089762-DEN February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. This is a critical issue for me as I consider my upcoming vote for governor. Sincerely Brian Stevens [redacted]	***Unique Comment #227-10*** *(ID 3021)**:*** *This is a critical issue for me as I consider my upcoming vote for governor.* **Response #227-10:** The Corps notes the comment.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #235 Lorenz A. Kull	From: [redacted] Sent: Thursday, February 11, 2010 9:10 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Colorado prides itself (and publicly proclaims) that it is a state that protects its wildlife and environment. Diverting more water to the front range in order to permit more development doesn't seem to be consistent with that position	***Unique Comment #235-10*** *(ID 3022)**:*** *Colorado prides itself (and publicly proclaims) that it is a state that protects its wildlife and environment. Diverting more water to the front range in order to permit more development doesn't seem to be consistent with that position.* **Response #235-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Sincerely Lorenz A.Kull [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #238 Willard L. Clapper	From: [redacted] Sent: Thursday, February 11, 2010 9:50 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I realize that this is a pre-written letter, one that could easily be overlooked by you, but that would be unfair to those of us who care deeply and share those intentions. Don't lessen the value of this letter because it is "canned." I, and pehaps hundreds of thousands, support this letter and ask that you listen to its content and know that even though we did not write an	***Unique Comment #238-10*** *(ID 3023)**:*** *I realize that this is a pre-written letter, one that could easily be overlooked by you, but that would be unfair to those of us who care deeply and share those intentions. Don't lessen the value of this letter because it is "canned." I, and perhaps hundreds of thousands, support this letter and ask that you listen to its content and know that even though we did not write an "original" letter, our hearts and souls are with this letter. Please do the right thing and protect our waterways from Denver's insatiable thirst.* **Response #238-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	"original" letter, our hearts and souls are with this letter. Please do the right thing and protect our waterways from Denver's insatiable thirst. Sincerely Willard L. Clapper [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #242 Jim Bittner	From: [redacted] Sent: Thursday, February 11, 2010 10:30 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System--Please Help! February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. What ultimately happens with this project will have long-term ramifications to Colorado's natural and economic resources. It's not just about the fish! Sincerely Jim Bittner	***Unique Comment #242-10*** *(ID 3024)**:*** *What ultimately happens with this project will have long-term ramifications to Colorado's natural and economic resources. It's not just about the fish!* **Response #242-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

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Comment Information	Comment	Comments and Responses
Comment #243 Jonette Bronson	From: [redacted] Sent: Thursday, February 11, 2010 10:40 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. i used to live in this area and would like to express my sincere love of the pristine environment and sensitive ecosystem, already significantly impacted by the population growth in our state Sincerely	***Unique Comment #243-10*** *(ID 3025)**:*** *I used to live in this area and would like to express my sincere love of the pristine environment and sensitive ecosystem, already significantly impacted by the population growth in our state.* **Response #243-10:** The Corps notes the comment.

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Comment Information	Comment	Comments and Responses
	jonette bronson [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #250 David D. Schuessler	From: [redacted] Sent: Thursday, February 11, 2010 11:40 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Tunnel expansion February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. The above statement accurately conveys my feelings about the Moffat Tunnel expansion. There is also a spirtiual aspect to any river system for its users and community members. To quote Terry Tempest Williams, "We are not talking about real estate here, we are talking about the body of the beloved." Sincerely	***Unique Comment #250-1*** *(ID 389)**:*** *The above statement accurately conveys my feelings about the Moffat Tunnel expansion. There is also a spiritual aspect to any river system for its users and community members. To quote Terry Tempest Williams, "We are not talking about real estate here, we are talking about the body of the beloved."* **Response #250-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	David D. Schuessler [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #258 Sinjin Eberle	From: [redacted] Sent: Thursday, February 11, 2010 1:10 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat - Conservation First, more transbasin diversion later! February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Conservation first, dewatering the Colorado River, never! Sincerely Sinjin Eberle [redacted]	***Unique Comment #258-10*** *(ID 3026)**:*** *Conservation first, dewatering the Colorado River, never!* **Response #258-10:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought.

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Comment Information	Comment	Comments and Responses
	[redacted]	

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Comment Information	Comment	Comments and Responses
Comment #264 Captain Chris Wells, [redacted]	From: [redacted] Sent: Thursday, February 11, 2010 2:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Colorado, Fraiser (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit Public Comment February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. My name is Chris Wells and I am a native of Colorado. I own and operate [redacted] a Colorado fly fishing guide service. I have fished the Colorado River and the Fraser River since I was a little boy and continue to do so. I fish both rivers personally as well as for my livelyhood. There are already problems with the stream flows on both rivers and it would ruin them to take	***Unique Comment #264-10*** *(ID 3027)**:*** *My name is Chris Wells and I am a native of Colorado. I own and operate [redacted], a Colorado fly fishing guide service. I have fished the Colorado River and the Fraser River since I was a little boy and continue to do so. I fish both rivers personally as well as for my livelihood. There are already problems with the stream flows on both rivers and it would ruin them to take any more water from them. Please help us protect one of Colorado's finest trout fisheries and natural resources.* **Response #264-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	any more water from them. Please help us protect one of Colorado's finest trout fisheries and natural resources. Sincerely Capt. Chris Wells [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #270 Adam Cudd	From: [redacted] Sent: Thursday, February 11, 2010 7:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. The Fraser River is already 60% of it's regular flow that is a huge amount of water to TAKE out of a river and expect it to thrive. Please consider the afore mentioned impacts before taking anymore water. Denver could learn the basics of conserving water and the Fraser River could be a river once again.	***Unique Comment #270-10*** *(ID 3028)**:*** *The Fraser River is already 60% of its regular flow that is a huge amount of water to TAKE out of a river and expect it to thrive. Please consider the aforementioned impacts before taking anymore water. Denver could learn the basics of conserving water and the Fraser River could be a river once again.* **Response #270-10:** DEIS Section 3.1 presents information that demonstrates the hydrologic effects of upstream transbasin diversions and increased water use over time in the Upper Fraser River Basin and along the Colorado River mainstem at Windy Gap. DEIS Table 3.1-10 summarizes the effects of historical Moffat Collection System diversions on native flow at the Fraser River at Winter Park gage. On average, Denver Water diverted approximately 50% of the average annual native flow at the Fraser River at Winter Park gage for the 30-year period from 1975 through 2004. The percentage of native flow diverted by Denver Water depends on the location in the basin. Denver Water would divert over 90% of the native flow with the Moffat Project on-line from some small tributaries that do not have bypass flow requirements. Denver Water would divert about 76% of the native flow at the Winter Park gage with the Moffat Project on-line. At the Granby gage located near the mouth of the Fraser River, Denver Water's average annual Moffat Collection System diversions represent approximately 41% of the native flow. Tables showing the percentage of native flow diverted by Denver Water under Current Conditions, Full Use of the Existing System and the proposed Moffat Project flow were added to FEIS Appendix H. A summary of conservation measures implemented by Denver Water from 1980 to 2006 to reduce the

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	Sincerely adam cudd [redacted]	demand in Denver Water's Combined Service Area is provided in DEIS Table 1-2. Denver Water's demand management and drought restriction efforts have been partially responsible for a decline in average daily consumption. Water conservation is part of the solution for water supply projects. Almost half (16,000 AF/yr) of the identified supply short-fall would be met with additional conservation savings. Denver Water plans to reduce its demand by 16,000 AF/yr by 2032 with additional conservation measures, which are anticipated to achieve long-term sustainable reductions in water use. An independent review of the projected conservation savings of 16,000 AF/yr was conducted as part of the EIS analysis. Denver Water is relying upon these future savings in its demand projections to calculate the need for 18,000 AF/yr of new firm yield. Refer to FEIS Sections 1.4.1.2 and 1.4.3.1 and Appendix A for a discussion of Denver Water's conservation efforts. These additional conservation measures reduce the requirement for new water supplies from the Upper Colorado River Basin.

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Comment Information	Comment	Comments and Responses
Comment #276 Patrick H. Degnan	From: [redacted] Sent: Thursday, February 11, 2010 9:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System DEIS Comment February 11, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As the grandparent of four small children, I have just begun introducing the oldest, a grandson, to the outdoors and particularly to wilderness areas. I am trying to impress on him the need to leave something of our past not for him to enjoy, but for future generations as well. I urge you to consider the need to address the failures in the current DEIS,	***Unique Comment #276-10*** *(ID 3029)**:*** *As the grandparent of four small children, I have just begun introducing the oldest, a grandson, to the outdoors and particularly to wilderness areas. I am trying to impress on him the need to leave something of our past not for him to enjoy, but for future generations as well. I urge you to consider the need to address the failures in the current DEIS, and to correct those failures. If you don't, we will all loose.* **Response #276-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	and to correct those failures. If you dont, we will all loose. Sincerely Patrick H. Degnan [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #279 Richard Hus	From: [redacted] Sent: Friday, February 12, 2010 6:50 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffet Tunnel February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please provide resources for our fish as the demand for water resources grow. Sincerely Richard Hus [redacted]	***Unique Comment #279-10*** *(ID 3030)**:*** *Please provide resources for our fish as the demand for water resources grow.* **Response #279-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #280 Tommy Lorden	From: [redacted] Sent: Friday, February 12, 2010 7:20 AM To: MOFFAT.EIS@usace.army.mil Subject: Public Comment on Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit - MOFFAT February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please remember that these river systems are already stressed, and any changes now are going to have consequences for years to come. Thanks for your consideration.	***Unique Comment #280-10*** *(ID 3031)**:*** *Please remember that these river systems are already stressed, and any changes now are going to have consequences for years to come. Thanks for your consideration.* **Response #280-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Tommy Lorden [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #281 Bart Elliott	From: [redacted] Sent: Friday, February 12, 2010 8:20 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat collection (Permit Application NOW-2002089762-DEN) DEIS and Section 404 Permit Public Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a resident of Winter Park I feel the impacts are already significant on the Fraser River and I hope you will work to conserve this valuable resource Sincerely	***Unique Comment #281-10*** *(ID 3032)**:*** *As a resident of Winter Park I feel the impacts are already significant on the Fraser River and I hope you will work to conserve this valuable resource.* **Response #281-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Bart Elliott [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #282 Jason Relyea	From: [redacted] Sent: Friday, February 12, 2010 7:50 AM To: MOFFAT.EIS@usace.army.mil Subject: protect the Colorado River - please February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please make a stand and protect our river ecosystems before they all dry up - which isn't too far away at the rate we're going. Sincerely jason relyea	***Unique Comment #282-10*** *(ID 3033)**:*** *Please make a stand and protect our river ecosystems before they all dry up - which isn't too far away at the rate we're going.* **Response #282-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #284 Travis Rummel	From: [redacted] Sent: Friday, February 12, 2010 9:20 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I value flowing rivers on Colorado's Western Slope. There is a huge amount of water conservation potential in the Front Range, until that potential is reached, I strongly believe we should not be tapping the watersheds of the Western Slope. Sincerely	***Unique Comment #284-10*** *(ID 3034)**:*** *I value flowing rivers on Colorado's Western Slope. There is a huge amount of water conservation potential in the Front Range, until that potential is reached, I strongly believe we should not be tapping the watersheds of the Western Slope.* **Response #284-10:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2.

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Comment Information	Comment	Comments and Responses
	Travis Rummel [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #288 Alex Dempster	From: [redacted] Sent: Friday, February 12, 2010 10:00 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Thank you for your time. Sincerely Alex Dempster [redacted]	***Unique Comment #288-10*** *(ID 3035)**:*** *Thank you for your time.* **Response #288-10:** The Corps notes the comment.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #301 David Arcenia	From: [redacted] Sent: Friday, February 12, 2010 1:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please please please please pleas don't kill our fisheries. I have a two year old daughter that is going to need this very badly in a few years. Sincerely David Arcenia	***Unique Comment #301-10*** *(ID 3036)**:*** *Please please please please please don't kill our fisheries. I have a two year old daughter that is going to need this very badly in a few years.* **Response #301-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #302 Ronald Johnson	From: [redacted] Sent: Friday, February 12, 2010 2:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I am an owner of a home in the Fraser valley and one in Lone Tree, at the south end of the Denver metro area. While I understand the need for water in Denver, it breaks my heart to see what has already happened with the Fraser river and its tributaries and the Colorado river. Low summer flows resulting in warm water threatens the trout populations, which in turn, diminishes the quality of life in that valley and reduces the economic health of the area.	***Unique Comment #302-0*** *(ID 3037)**:*** *I am an owner of a home in the Fraser valley and one in Lone Tree, at the south end of the Denver metro area. While I understand the need for water in Denver, it breaks my heart to see what has already happened with the Fraser river and its tributaries and the Colorado river. Low summer flows resulting in warm water threaten the trout populations, which in turn, diminishes the quality of life in that valley and reduces the economic health of the area. Having a home in the Denver area as well, I know that the lawns and parks look good and provide enjoyment for residents, but this should not be provided at the expense of other areas of the state, in this case the Fraser valley. It is time now to look for long term solutions to this problem which, if not addressed now, will only get worse and be harder to fix down the road. I encourage you to consider water rationing for lawn use, increased fees to reduce overall usage, programs to reduce the size of and eliminate many grassy areas and look for incentives to use different plant and grass materials requiring less water. Please stop this project and reconsider how the problems can be solved in a different way now. It would benefit all in the state and keep it more natural for future generations. Thank you.* **Response #302-0:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may

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	Having a home in the Denver area as well, I know that the lawns and parks look good and provide enjoyment for residents, but this should not be provided at the expense of other areas of the state, in this case the Fraser valley. It is time now to look for long term solutions to this problem which, if not addressed now, will only get worse and be harder to fix down the road. I encourage you to consider water rationing for lawn use, increased fees to reduce overall usage, programs to reduce the size of and eliminate many grassy areas and look for incentives to use different plant and grass materials requiring less water. Please stop this project and reconsider how the problems can be solved in a different way now. It would benefit all in the state and keep it more natural for future generations. Thank you. Best Regards, Ronald Johnson [redacted]	lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

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Comment Information	Comment	Comments and Responses
Comment #308 Mikkel Hylden	From: [redacted] Sent: Friday, February 12, 2010 4:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I firmly believe the the correct course of action with regards to water in Colorado is to increase conservation measures, and the awareness of the public to the nature of the situation. This must include more stringent restrictions on landscape watering. Any money potenitally spent on further diversions would be better spend promoting conservation and xeriscaping of metro landscapes.	***Unique Comment #308-0*** *(ID 3038)**:*** *I firmly believe the the correct course of action with regards to water in Colorado is to increase conservation measures, and the awareness of the public to the nature of the situation. This must include more stringent restrictions on landscape watering. Any money potentially spent on further diversions would be better spent promoting conservation and xeriscaping of metro landscapes.* **Response #308-0:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Sincerely Mikkel Hylden [redacted]	The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #311 Mark Heirigs	From: [redacted] Sent: Friday, February 12, 2010 5:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Thank you for taking the time to read this request and your immediate attention is appreciated. Sincerely	***Unique Comment #311-10*** *(ID 3039)**:*** *Thank you for taking the time to read this request and your immediate attention is appreciated.* **Response #311-10:** The Corps notes the comment.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Mark Heirigs [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #312 Merritt Logan	From: [redacted] Sent: Friday, February 12, 2010 6:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Water will run out eventually, there is no point in draining another river for lawns that we will not be able to water in ten years regardless. Save the fraisher. Start serious conservation now. Sincerely	***Unique Comment #312-10*** *(ID 3040)**:*** *Water will run out eventually, there is no point in draining another river for lawns that we will not be able to water in ten years regardless. Save the Fraser. Start serious conservation now.* **Response #312-10:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Merritt Logan [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #314 Keith Reviello	From: [redacted] Sent: Friday, February 12, 2010 8:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. It's time to put up the unpopular initiatives curbing USE. How many more sprinklers and urban irrigation projects until our namesake river is flowing 70 degree all summer and too low to even boat. It's near there already sir. Sincerely	***Unique Comment #314-10*** *(ID 3041)**:*** *It's time to put up the unpopular initiatives curbing USE. How many more sprinklers and urban irrigation projects until our namesake river is flowing 70 degree all summer and too low to even boat. It's near there already sir.* **Response #314-10:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Keith Reviello [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #315 Joe Cudd	From: [redacted] Sent: Friday, February 12, 2010 9:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a long-time local of the Fraser Valley I know first-hand the importance of the waters affected by the Moffat Firming Project. I am an avid fisherman and recreational enthusiast who was employed by the service industry in addition to a full-time office job. I understand that the west is expanding, but is that more important than the	***Unique Comment #315-10*** *(ID 3043)**:*** *As a long-time local of the Fraser Valley I know first-hand the importance of the waters affected by the Moffat Firming Project. I am an avid fisherman and recreational enthusiast who was employed by the service industry in addition to a full-time office job. I understand that the west is expanding, but is that more important than the reasons people live out west or the environment itself? The water that gets diverted from the rivers waters people's lawns on the front-range, but takes food off of others' tables. The rivers in the Fraser Valley to Kremmling to Grand Lake are one of the most important economical influxes to these communities. The whole mountain economy is dependent upon the waters that flow from there.* **Response #315-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Unique Comment #315-11*** *(ID 3042)**:*** *I have a degree in Business-Real Estate and Urban Land Economics from the University of Wisconsin - Madison and was a Title Officer for a Title Insurance Company and know about water rights. These rights were unfairly purchased by educated-white collar individuals from the hard working, blue-collar individuals, the very people who established the mountain communities. The water taken from the water rights are unfairly being used and consumed by communities that are 10's of miles from its origin. The thought of double-taxation comes to mind when I think of the Moffat Firming Project. Not only did the Denver Water Board unjustifiably gain the rights to the water from local ranchers, but they are trying to make the common, life-living individuals pay again by stealing their well-being and means to make a*

Comment Information	Comment	Comments and Responses
	reasons people live out west or the environment itself? The water that gets diverted from the rivers waters people's lawns on the front-range, but takes food off of others' tables. The river's in the Fraser Valley to Kremmling to Grand Lake are one of the most important economical influx to these communities. The whole mountain economy is dependent upon the waters that flow from there. I have a degree in Business-Real Estate and Urban Land Economics from the University of Wisconsin - Madison and was a Title Officer for a Title Insurance Company and know about water rights. These rights were unfairly purchased by educated-white collar individuals from the hard working, blue-collar individuals, the very people who established the mountain communities. The water taken from the water rights are unfairly being used and consumed by communities that are 10's of miles from it's origin. The thought of double-taxation comes to mind when I think of the Moffat Firming Project. Not only did the Denver Water Board unjustifiably gain the rights to the water from local ranchers, but they are trying to make the common, life-living individuals pay again by stealing their well-being and means to make a living. There are the immediate victims; rafting and fishing companies, that are at the mercy of the river and there are the service, hospitality and retail businesses that thrive from the people that come to the communities to use the waters for recreation. The whole economy is centered around the well-being of the rivers. While the water diverted from the rivers may be used to wash a car in a mismanaged, overly populated, well-to-do front range community, that same water could possibly be used to provide a local with the means to live below the poverty line. I strongly urge you to reconsider the reasons why water is being taken from the once-thriving ecosystem and "piped" for miles for non-intended uses of this pure mountain water. Sincerely Joe Cudd [redacted]	*living. There are the immediate victims; rafting and fishing companies, that are at the mercy of the river and there are the service, hospitality and retail businesses that thrive from the people that come to the communities to use the waters for recreation. The whole economy is centered around the well-being of the rivers. While the water diverted from the rivers may be used to wash a car in a mismanaged, overly populated, well-to-do front range community that same water could possibly be used to provide a local with the means to live below the poverty line. I strongly urge you to reconsider the reasons why water is being taken from the once-thriving ecosystem and "piped" for miles for non-intended uses of this pure mountain water.* **Response #315-11:** Denver Water paid the previous owners (in United States [U.S.] currency) for their water rights at the time of transaction. In Colorado, a water right is a property right and may be sold or traded by an owner to any other party.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #318 Wendell Hatfield	From: [redacted] Sent: Saturday, February 13, 2010 10:20 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 13, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Reflexive expediency could kill some great works of nature which we should protect for us and future generations. Why not implement programs of desalination for coastal areas to free more available water for central regions. Please think longer term. Sincerely	***Unique Comment #318-10*** *(ID 3044)**:*** *Reflexive expediency could kill some great works of nature which we should protect for us and future generations. Why not implement programs of desalination for coastal areas to free more available water for central regions. Please think longer term.* **Response #318-10:** The Corps notes the comment.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Wendell Hatfield [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #326 Dustin S. Aldridge	From: [redacted] Sent: Saturday, February 13, 2010 3:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 13, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Let's think outside the box for once before we go on doing the same thing we've done in the past to address the water needs in this state. Maybe its time to to go to the people of this state and ask them why they moved here and what it would be like in 10, 20, or 50 years if we continue to destroy the natural habitat that we all moved here to be around.	***Unique Comment #326-10*** *(ID 3045)**:*** *Let's think outside the box for once before we go on doing the same thing we've done in the past to address the water needs in this state. Maybe it's time to to go to the people of this state and ask them why they moved here and what it would be like in 10, 20, or 50 years if we continue to destroy the natural habitat that we all moved here to be around. I for one would like to be able to take my sons fishing when they get older, and would prefer to do it in this state. But the direction things are going, we will be going to Montana or Wyoming to do the things my family moved Colorado to do. Stop. Think. Don't React.* **Response #326-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	I for one would like to be able to take my sons fishing when they get older, and would prefer to do it in this state. But the direction things are going, we will be going to Montana or Wyoming to do the things my family moved Colorado to do. Stop. Think. Don't React. Sincerely Dustin S Aldridge [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #328 Doug Dunkle	From: [redacted] Sent: Saturday, February 13, 2010 5:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 13, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Enough already. Does bluegrass naturally thrive in a high plains environment? If Denver and enrivons nedds more water, let's make sure it is for human consumption...drinking and waste disposal. If we need more water from the Fraser and other western slope watersheds, we need to insure that it goes only to essential needs...basic human and agriculticural needs and not rampant environmentally pillaging economical and development ends that result	***Unique Comment #328-10*** *(ID 3046)**:*** *Enough already. Does bluegrass naturally thrive in a high plains environment? If Denver and environs needs more water, let's make sure it is for human consumption...drinking and waste disposal. If we need more water from the Fraser and other western slope watersheds, we need to insure that it goes only to essential needs...basic human and agricultural needs and not rampant environmentally pillaging economical and development ends that result in the destruction of wild life and habitat.* **Response #328-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	in the destruction of wild life and habitat. Sincerely Doug Dunkle [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #332 Mel Preusser	From: [redacted] Sent: Sunday, February 14, 2010 3:10 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 14, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I have fished the Fraser for years and have seen the decline in the flow and subsequent deterioration of the aquatic habitat. Shame on us for doing this. Please help us preserve what's left. Sincerely	***Unique Comment #332-10*** *(ID 3047)**:*** *I have fished the Fraser for years and have seen the decline in the flow and subsequent deterioration of the aquatic habitat. Shame on us for doing this. Please help us preserve what's left.* **Response #332-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Mel Preusser [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #333 Patrick Drew	From: [redacted] Sent: Sunday, February 14, 2010 3:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 14, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I believe that it is generally bad watershed management policy to divert flows from one major watershed into another. Sincerely Patrick Drew	***Unique Comment #333-10*** *(ID 3048)**:*** *I believe that it is generally bad watershed management policy to divert flows from one major watershed into another.* **Response #333-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	[redacted]	

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Comment Information	Comment	Comments and Responses
Comment #338 Brock McCormick	From: [redacted] Sent: Monday, February 15, 2010 9:50 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 15, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I do not believe that Denver Water and front range communities have thoroughly explored options involving water conservation that not only encourage, but require smart and efficient water use. Water conservation is a common sense solution that will not jeopardize the health of our west slope rivers. I also have doubts as to whether the impacts of the proposed actions can be reasonably mitigated. Water is the cornerstone of every ecological	***Unique Comment #338-0*** *(ID 3049)**:*** *I do not believe that Denver Water and front range communities have thoroughly explored options involving water conservation that not only encourage, but require smart and efficient water use. Water conservation is a common sense solution that will not jeopardize the health of our west slope rivers. I also have doubts as to whether the impacts of the proposed actions can be reasonably mitigated. Water is the cornerstone of every ecological community and the impacts of dewatering these vital rivers are numerous and widespread. Of local concern are the impacts on our west slope terrestrial Forest Service Sensitive and Management Indicator Species, including but not limited to bald eagle, river otter, Wilson's warbler, and boreal toad. Of special concern is the loss of wetland habitat, which contributes greatly to west slope biodiversity. Any reduction in wetland habitat would contribute to increasing stresses on amphibian populations that are already struggling due to disease, drought, and climate change.* **Response #338-0:** The Purpose and Need for the Moffat Project addresses: (1) Meeting a water supply shortfall of 18,000 acre-feet (AF) (i.e., the portion that conservation would not meet), (2) Improving reliability in the north end of the system to ensure an adequate water supply for Denver Water customers who depend on the north end of the system for their water supply, and (3) Reducing vulnerability by balancing the water supplies in the North and South systems. Therefore, conservation alone would not meet the Purpose and Need for the Project. It should be noted that Denver Water is relying on almost half (i.e., 16,000 AF) of the water supply shortfall identified by Denver Water to be met through conservation. Therefore, water conservation is a part of all alternatives.

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	community and the impacts of dewatering these vital rivers are numerous and widespread. Of local concern are the impacts on our west slope terrestrial Forest Service Sensitive and Management Indicator Species, including but not limited to bald eagle, river otter, wilson's warbler, and boreal toad. Of special concern is the loss of wetland habitat, which contributes greatly to west slope biodiversity. Any reduction in wetland habitat would contribute to increasing stresses on amphibian populations that are already struggling due to disease, drought, and climate change. Sincerely Brock McCormick [redacted]	Water conservation is one component of meeting future water demand. A reasonable aggressive conservation plan has been implemented by Denver Water to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the Project demand in calculating the need for 18,000 AF of new reliable firm yield. A summary of conservation measures implemented by Denver Water is provided in Table 1-2 of the DEIS and FEIS. Bald eagle, river otter, and boreal toad were evaluated for the West Slope river segments in DEIS Sections 3.8.5 and 4.8.1.2. More information has been added regarding river otter and boreal toad along the Fraser River (FEIS Section 4.6.10). Wilsons' warbler is a USFS Management Indicator Species for montane riparian and wetlands habitat. As described in FEIS Section 4.6.8, impacts to riparian and wetlands habitats along the river segments are expected to be minor to negligible. Impacts to amphibians from changes in stream flows are also expected to be minimal.

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Comment Information	Comment	Comments and Responses
Comment #342 Frank Cada	From: [redacted] Sent: Monday, February 15, 2010 4:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 15, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. This river is one on Colorado's jewels and one of the reasons I have enjoyed living here since 1966. Sending more water to the Front Range is harmful to both sides of the divide. The east side gets more people, congestions, and pollution. The west side loses tourist business and great fish and wildlife habitat. It seems to me that the west side will be getting more people in the digital age where folks can work where they chose in many cases. These could	***Unique Comment #342-10*** *(ID 3050)**:*** *This river is one on Colorado's jewels and one of the reasons I have enjoyed living here since 1966. Sending more water to the Front Range is harmful to both sides of the divide. The east side gets more people, congestions, and pollution. The west side loses tourist business and great fish and wildlife habitat. It seems to me that the west side will be getting more people in the digital age where folks can work where they chose in many cases. These could be high paying jobs that help our economy. If I were moving to Colorado now I would prefer the west slope due to recreation and less population. Please don't take any more water from the Fraser.* **Response #342-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	be high paying jobs that help our economy. If I were moving to Colorado now I would prefer the west slope due to recreation and less population. Please don't take any more water from the Fraser. Sincerely Frank Cada [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #346 Robert Baumgarten	From: [redacted] Sent: Monday, February 15, 2010 7:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 15, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. In addition, as resident of both Denver and Grand counties, I am particulary interested in finding a solution that preserves and even enhances the Fraser River Basin ecosytem. While it's water is important to the front range, it is of significant economic import in the Fraser Valley. Not to mention the whole preservation for our children and their children.	***Unique Comment #346-10*** *(ID 3051)**:*** *In addition, as resident of both Denver and Grand counties, I am particularly interested in finding a solution that preserves and even enhances the Fraser River Basin ecosytem. While it's water is important to the front range, it is of significant economic import in the Fraser Valley. Not to mention the whole preservation for our children and their children.* **Response #346-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Robert Baumgarten [redacted]	

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Comment #348 Jeff Voth	From: [redacted] Sent: Tuesday, February 16, 2010 6:40 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 16, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. In my opinion, continuing do de-water natural water resources is a very short-sighted and short term solution. It just leads to more of the same in the future. We need to figure out ways to live in harmony with nature and the natural resources that exist around us. Diverting water out of its normal flow course will only lead to greater negative consequences down the road.	***Unique Comment #348-10*** *(ID 3052)**:*** *In my opinion, continuing do de-water natural water resources is a very short-sighted and short term solution. It just leads to more of the same in the future. We need to figure out ways to live in harmony with nature and the natural resources that exist around us. Diverting water out of its normal flow course will only lead to greater negative consequences down the road.* **Response #348-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Jeff Voth [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #349 David A. Martinez	From: [redacted] Sent: Tuesday, February 16, 2010 8:30 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 16, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a concerned citizen of Colorado, it is most dis-heartening to learn that additional water is planned to be removed from the Upper Colorado River Basin. As current flows have already been reduced to feed the greater Denver area, additional reductions will leave the upper Colorado River permanently damaged and will no longer providea sanctuary for fish, waterfowl and wildlife.	***Unique Comment #349-10*** *(ID 3053)**:*** *As a concerned citizen of Colorado, it is most dis-heartening to learn that additional water is planned to be removed from the Upper Colorado River Basin. As current flows have already been reduced to feed the greater Denver area, additional reductions will leave the upper Colorado River permanently damaged and will no longer provide a sanctuary for fish, waterfowl and wildlife. As natural watersheds continue to be depleted for the sake of population expansion, it is about time the real issue be addressed and efforts be expanded to educate public and private sectors on water conservation. While I appreciate your efforts to address the needs of the Denver area, it goes without saying that further depletion of water sheds will only lead to the need to expand to more and more watersheds thus eliminating more and more wildlife habitats. Thank you for considering all options!* **Response #349-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	As natural watersheds continue to be depleted for the sake of population expansion, it is about time the real issue be addressed and efforts be expanded to educate public and private sectors on water conservation. While I appreciate your efforts to address the needs of the Denver area, it goes without saying that further depletion of water sheds will only lead to the need to expand to more and more watersheds thus eliminating more and more wildlife habitats. Thank you for considering all options! Sincerely David A. Martinez [redacted]	

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Comment #357 Jon P. Sokol	From: [redacted] Sent: Tuesday, February 16, 2010 3:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 16, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Moreover, I personally feel that it makes no sence to use the natural resources that exist (west slope waters), to attempt to sustain an unnatural one (lawns in the front range) simply for aesthetic purposes. We have a major problem with water conservation if we prioritize water usage in this fashion, and this problem is slated to get worse over the next 20	***Unique Comment #357-0*** *(ID 3054)**:*** *Moreover, I personally feel that it makes no sense to use the natural resources that exist (west slope waters), to attempt to sustain an unnatural one (lawns in the front range) simply for aesthetic purposes. We have a major problem with water conservation if we prioritize water usage in this fashion, and this problem is slated to get worse over the next 20 years. We need to take measures now to promote the conservation of our water for immediate and future use. It would be far more effective to reward people in the front range by taking active steps to incentivize individuals to not use water wastefully. Zero scaping, or allowing areas to revert back to the indigenous plant species. Lastly, as this water system is largely dependent upon the snowpack, what happens in a year with poor snow totals when you are diverting 80% of the river flows? You permanently destroy the habitat. The massive water needs of the front range need to be addressed, but the solution is not by removing more water from naturally occurring systems, it is conservation of what is already there.* **Response #357-0:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also

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	years. We need to take measures now to promote the conservation of our water for immediate and future use. It would be far more effective to reward people in the front range by taking active steps to incentivize individuals to not use water wastefully. Zero scaping, or allowing areas to revert back to the indiginous plant species. Lastly, as this water system is largely dependant upon the snowpack, what happens in a year with poor snow totals when you are diverting 80% of the river flows? You perminately destroy the habitat. The massive water needs of the front range need to be addressed, but the solution is not by removing more water from naturally occuring systems, it is conservation of what is already there. Sincerely Jon P. Sokol [redacted]	educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

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Comment Information	Comment	Comments and Responses
Comment #359 John Trammell	From: [redacted] Sent: Tuesday, February 16, 2010 4:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 16, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Gentlemen, Trout Unlimited's analysis of the DEIS is accurate, and I concur with it completely. How can you even consider continuing without addressing these issues?	***Unique Comment #359-10*** *(ID 3055)**:*** *Gentlemen, Trout Unlimited's analysis of the DEIS is accurate, and I concur with it completely. How can you even consider continuing without addressing these issues?* **Response #359-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	Sincerely, a concerned conservationist, John Trammell [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #361 Thomas A. Ghidossi	From: [redacted] Sent: Tuesday, February 16, 2010 9:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 16, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I feel very strongly that, living in a high desert environment such as Colorado, we must conserve water in everyday use. I think that pricing water to create an incentive to conserve, such as the City of Fort Collins' tiered rates, allows for basic and affordable water use, but encourages limits to that use.	***Unique Comment #361-10*** *(ID 3056)**:*** *I feel very strongly that, living in a high desert environment such as Colorado, we must conserve water in everyday use. I think that pricing water to create an incentive to conserve, such as the City of Fort Collins' tiered rates, allows for basic and affordable water use, but encourages limits to that use. The lawns and trees in our cities are fine, but without the wonderful rivers and streams, we would have a very sad state of Colorado. There is no greater gift to our children and future generations than the opportunity to visit, enjoy, and fish the wonderful waters of this state.* **Response #361-10:** All Denver Water Customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County of Denver. Costs are recovered from each customer class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge.

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	The lawns and trees in our cities are fine, but without the wonderful rivers and streams, we would have a very sad state of Colorado. There is no greater gift to our children and future generations than the opportunity to visit, enjoy, and fish the wonderful waters of this state. Sincerely Thomas A. Ghidossi [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #368 Brooke Murphy	From: [redacted] Sent: Wednesday, February 17, 2010 10:10 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 17, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Thank you for taking the time to consider the depth of this issue. I work for several small businesses that depend on visiting fishermen, sportsmen and outdoorsmen. If water is not shared to help support our tourist economy, then I am also out of work. Everything is related- this issue is not only important to all those people	***Unique Comment #368-10*** *(ID 3057)**:*** *Thank you for taking the time to consider the depth of this issue. I work for several small businesses that depend on visiting fishermen, sportsmen and outdoorsmen. If water is not shared to help support our tourist economy, then I am also out of work. Everything is related- this issue is not only important to all those people who want non-native, green grass in their yards. It is important to people whose very livelihoods depend on the natural resources in our state. It is our responsibility to protect and preserve these natural resources. The effect of this decision will effect future generations. We must take steps to stop wasting water!!!! Please take into consideration the things I have written and the larger issues at hand. Please help to protect our water, land and wildlife! Set a precedent in our society by protecting what we value most.* **Response #368-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	who want non-native, green grass in their yards. It is important to people whose very livelihoods depend on the natural resources in our state. It is our responsibility to protect and preserve these natural resources. The effect of this decision will effect future generations. We must take steps to stop wasting water!!!! Please take into consideration the things I have written and the larger issues at hand. Please help to protect our water, land and wildlife! Set a precedent in our society by protecting what we value most. Sincerely Brooke Murphy [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #375 Doreen Sumerlin	From: [redacted] Sent: Wednesday, February 17, 2010 7:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 17, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I know that the above is a form letter but they are excellent points. Water conservation must be a priority within the Denver Water system with mandatory restrictions, penalties and enforcement. Flows and aquatic health of the Fraser River system have direct effects on migratory birds. Summer breeding migratory birds rely on willow carrs and floodplain shrub communities for nesting and brood-rearing. In addition, the	***Unique Comment #375-0*** *(ID 3059)**:*** *I know that the above is a form letter but they are excellent points. Water conservation must be a priority within the Denver Water system with mandatory restrictions, penalties and enforcement.* **Response #375-0:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Mandatory watering restrictions are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 AF. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating

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	Fraser River and its floodplain are followed by birds migrating through Colorado on their way to and from more northern breeding grounds and southern winter ranges and provide critical stopover habitats. The river and water table also support adjacent wetland complexes important to rare plants, amphibians, small mammals and birds and inter-connectedness of the Fraser River to these wetlands is not mentioned, explored or analyzed. Grand County and the Fraser River bear the brunt of the environmental effects of this proposal but receive minimal consideration and analysis of effects throughout the ecosystem. Sincerely Doreen Sumerlin [redacted]	the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations. ***Unique Comment #375-0*** *(ID 3058)**:*** *Flows and aquatic health of the Fraser River system have direct effects on migratory birds. Summer breeding migratory birds rely on willow carrs and floodplain shrub communities for nesting and brood-rearing. In addition, the Fraser River and its floodplain are followed by birds migrating through Colorado on their way to and from more northern*

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Comment Information	Comment	Comments and Responses
		breeding grounds and southern winter ranges and provide critical stopover habitats. The river and water table also support adjacent wetland complexes important to rare plants, amphibians, small mammals and birds and inter-connectedness of the Fraser River to these wetlands is not mentioned, explored or analyzed. Grand County and the Fraser River bear the brunt of the environmental effects of this proposal but receive minimal consideration and analysis of effects throughout the ecosystem. **Response #375-0:** The analysis of wildlife habitats and wildlife species and groups along the river segments has been expanded in FEIS Section 4.6.9. The Corps conducted analysis in the fall of 2010 to further evaluate the interactions of stream flow and groundwater on riparian and wetland areas in the Fraser Valley. The results of this analysis are included in FEIS Section 4.6.8.

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Comment Information	Comment	Comments and Responses
Comment #380 Robert Wuestenberg	From: [redacted] Sent: Thursday, February 18, 2010 2:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 18, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Please prevent further water being taken from the Colorado & Fraser for unsustainable uses and leave it for fish & other natural flora & fauna. Sincerely Robert Wuestenberg	***Unique Comment #380-10*** *(ID 3060)**:*** *Please prevent further water being taken from the Colorado & Fraser for unsustainable uses and leave it for fish & other natural flora & fauna.* **Response #380-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	[redacted]	

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Comment Information	Comment	Comments and Responses
Comment #388 Lauren B. Wenzl	From: [redacted] Sent: Sunday, February 21, 2010 11:40 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 21, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. owner [redacted] I bought my winter house because it is right on the Fraser River. Not only would the property devalue but we would lose our trees to beetles like every one else if the river were not here.	***Unique Comment #388-1*** *(ID 3061)**:*** *I bought my winter house because it is right on the Fraser River. Not only would the property devalue but we would lose our trees to beetles like everyone else if the river were not here.* **Response #388-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Sincerely Lauren B Wenzl [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #398 Russell Miller	From: [redacted] Sent: Monday, February 22, 2010 5:00 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a front range home owner, we do not need the extra water, we simply need to use the water we have better. Sincerely Russell Miller	***Unique Comment #398-10*** *(ID 3062)**:*** *As a front range home owner, we do not need the extra water, we simply need to use the water we have better.* **Response #398-10:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2.

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Comment #399 Ray O'Mara	From: [redacted] Sent: Monday, February 22, 2010 5:30 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a retired Air Force General Officer, I have great respect and appreciation for the invaluable role played by the Army Corps of Engineers over their history. I sincerely request that they continue their service dedicated to preserving the Nation's resources while working to solve the water requirements of our society. Thank you in advance for taking appropriate action to ensure that effective mitigation is in place to protect the	***Unique Comment #399-10*** *(ID 3063)**:*** *As a retired Air Force General Officer, I have great respect and appreciation for the invaluable role played by the Army Corps of Engineers over their history. I sincerely request that they continue their service dedicated to preserving the Nation's resources while working to solve the water requirements of our society. Thank you in advance for taking appropriate action to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams.* **Response #399-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Sincerely Ray O'Mara [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #403 Andrew Sivess	From: [redacted] Sent: Monday, February 22, 2010 6:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As an engineer it amazes me that the points outlined above are not already included in the DEIS. The fact that the baseline for rivers effected by the proposed Moffat diversion is calculated using the current state of the rivers and does not take into account the impacts of past projects is embarrassing. If I were to examine the impacts of future changes on the projects I work on, rockets for ULA, and not include the impacts of past changes it would all but	***Unique Comment #403-10*** *(ID 3064)**:*** *As an engineer it amazes me that the points outlined above are not already included in the DEIS. The fact that the baseline for rivers affected by the proposed Moffat diversion is calculated using the current state of the rivers and does not take into account the impacts of past projects is embarrassing. If I were to examine the impacts of future changes on the projects I work on, rockets for ULA, and not include the impacts of past changes it would all but guarantee failure. Please examine the processes that are outlined in the DEIS and consider the points mentioned. I want the engineers making critical decisions about our water to have all of the information so they can do their job.* **Response #403-10:** The affected environment within the study area, which is presented in DEIS Chapter 3, is a function of past and present actions. Each resource considered the impacts of past and present projects and diversions. For example, the Section 3.1 presents streamflow data at various gages through the Project area for the 30-year period from 1975 through 2004. The historical flows at those gages reflect the effects of diversions associated with Denver Water's existing Moffat Collection System and other in-basin water users. To provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System, and each of the Moffat Project alternatives. The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full

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	guarantee failure. Please examine the processes that are outlined in the DEIS and consider the points mentioned. I want the engineers making critical decisions about our water to have all of the information so they can do their job. Sincerely Andrew Sivess [redacted]	Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's existing system reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat

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		Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032).

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Comment #405 James David Hibberd	From: [redacted] Sent: Monday, February 22, 2010 7:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Thanks for your consideration! Sincerely James David Hibberd [redacted]	***Unique Comment #405-10*** *(ID 3065)**:*** *Thanks for your consideration!* **Response #405-10:** The Corps notes the comment.

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Comment #407 Ian Pearson	From: [redacted] Sent: Monday, February 22, 2010 8:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. In addition to the perspectives of a knowledgeable and experienced outdoorsman and educated and involved Colorado citizen, I'm also a retired professional hydrologist. My professional training and experience gives me a balanced view of human and environmental needs of water resources. At times the Colorado River headwaters are already under severe environmental	***Unique Comment #407-10*** *(ID 3066)**:*** *In addition to the perspectives of a knowledgeable and experienced outdoorsman and educated and involved Colorado citizen, I'm also a retired professional hydrologist. My professional training and experience gives me a balanced view of human and environmental needs of water resources. At times the Colorado River headwaters are already under severe environmental stress under current diversions. With increasing scarcity and greater demands of water resources we need to be much more conscious of conservative water use and the external impacts of that use.* **Response #407-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	stress under current diversions. With increasing scarcity and greater demands of water resources we need to be much more conscious of conservative water use and the external impacts of that use. Sincerely Ian Pearson [redacted]	

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Comment #408 Mark J. Miller	From: [redacted] Sent: Monday, February 22, 2010 8:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 22, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. We really need your help to make this happen! Sincerely Mark J Miller [redacted]	***Unique Comment #408-10*** *(ID 3067)**:*** *We really need your help to make this happen!* **Response #408-10:** The Corps notes the comment.

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Comment #419 Jeff Lynch	From: [redacted] Sent: Tuesday, February 23, 2010 1:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 23, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Nothing has been done to control Front Range growth nor to promote reduced water use through alternative landscaping methods. Most of us moved to Colorado from other parts of the country where water is not such a big issue. We all must bite the bullet and recognize that we live in the Great American Desert. We've got change how we live and Denver Water has to lead that charge by encouraging developers to use new types of water efficient landscaping in	***Unique Comment #419-0*** *(ID 3068)**:*** *Nothing has been done to control Front Range growth nor to promote reduced water use through alternative landscaping methods. Most of us moved to Colorado from other parts of the country where water is not such a big issue. We all must bite the bullet and recognize that we live in the Great American Desert. We've got change how we live and Denver Water has to lead that charge by encouraging developers to use new types of water efficient landscaping in new developments. We've already waited too long to take these steps. We will run out of water and I don't want that to ruin the joy of riparian environs for my grandchildren.* **Response #419-0:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

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	new developments. We've already waited too long to take these steps. We will run out of water and I don't want that to ruin the joy of riparian environs for my grandchildren. Sincerely Jeff Lynch [redacted]	

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Comment #420 N. Kent Vick	From: [redacted] Sent: Tuesday, February 23, 2010 3:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 23, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. The very thing that drives development in the front range which are the mountains with streams that people want to have access to. ENOUGH IS ENOUGH!!! Leave the rivers alone! There are many unused methods to conserve water. Denver does not have to supply the front range.	***Unique Comment #420-10*** *(ID 3069)**:*** *The very thing that drives development in the front range which are the mountains with streams that people want to have access to. ENOUGH IS ENOUGH!!! Leave the rivers alone! There are many unused methods to conserve water. Denver does not have to supply the front range. Thank you for your consideration.* **Response #420-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	Thank you for your consideration. Sincerely N. Kent Vick [redacted]	

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Comment #431 Dave Schlichting	From: [redacted] Sent: Wednesday, February 24, 2010 9:00 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 24, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a home owner in both Denver, and Winter Park, I am adamantly opposed to any further diversion of water from the Frazier River. Please, do not destroy this river. Sincerely	***Unique Comment #431-10*** *(ID 3070)**:*** *As a home owner in both Denver, and Winter Park, I am adamantly opposed to any further diversion of water from the Frazier River. Please, do not destroy this river.* **Response #431-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	Dave Schlichting [redacted]	

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Comment #437 William Hague	From: [redacted] Sent: Wednesday, February 24, 2010 12:40 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 24, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a resident of Denver for more than forty years, I am acutely aware of Denver's water problems. The current and past droughts have only exacerbated the problems. Denver does not have enough water available for its current consumption let alone the projected increase. I accept that as a simple statement of the facts. However, if Denver took all the water from all the western slope and left the Colorado River dry at its border it would only	***Unique Comment #437-0*** *(ID 3071)**:*** *As a resident of Denver for more than forty years, I am acutely aware of Denver's water problems. The current and past droughts have only exacerbated the problems. Denver does not have enough water available for its current consumption let alone the projected increase. I accept that as a simple statement of the facts. However, if Denver took all the water from all the western slope and left the Colorado River dry at its border it would only postpone the day of reckoning. That too is a fact. Therefore stop trying to take more and more water from the Fraser and Colorado rivers. It won't solve the problem. The problem is water consumption not water availability. How to resolve this situation? Denver and the Front Range must do more to reduce its water consumption. We, all residents of Denver and the Front Range, must stop wasting water. Low flow toilets are a great start but that does not compare to the water wasted by over watering our lawns. The cities must stop over watering its parks and other public areas. The cities absolutely must stop watering medians along roadways, the water only runs into the streets and into the sewer system. Just stop it. These changes will not solve the water shortage, I know that. However, drying up the Fraser and Colorado Rivers won't either. Just STOP, do not take any more water from the Western Slope. Their lives and needs are no less important than those on the Front Range.* **Response #437-0:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong

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	postpone the day of reckoning. That to is a fact. Therefore stop trying to take more and more water from the Fraiser and Colorado rivers. It won't solve the problem. The problem is water consumption not water availability. How to resolve this situation? Denver and the Front Range must do more to reduce its water consumption. We, all residents of Denver and the Front Range, must stop wasting water. Low flow toilets are a great start but that does not compare to the water wasted by over watering our lawns. The cities must stop over watering its parks and other public areas. The cities absolutely must stop watering medians along roadways, the water only runs into the streets and into the sewer system. Just stop it. These changes will not solve the water shortage, I know that. However, drying up the Fraiser and Colorado Rivers won't either. Just STOP, do not take any more water from the Western Slope. Their lives and needs are no less important than those on the Front Range. Sincerely William Hague [redacted]	wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

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Comment Information	Comment	Comments and Responses
Comment #442 Lisa Bornfriend	From: [redacted] Sent: Thursday, February 25, 2010 9:40 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 25, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a member of the Fraser Valley community, I am very concerned with the sustainability of Fraser River. Please don't let any more water be taken from our struggling river systems, including the Fraser River and the Colorado River. Sincerely	***Unique Comment #442-10*** *(ID 3072)**:*** *As a member of the Fraser Valley community, I am very concerned with the sustainability of Fraser River. Please don't let any more water be taken from our struggling river systems, including the Fraser River and the Colorado River.* **Response #442-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
	Lisa Bornfriend [redacted]	

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Comment Information	Comment	Comments and Responses
Comment #466 Laura M. Hagar	From: [redacted] Sent: Friday, February 26, 2010 12:20 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment February 26, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Dear Mr. Franklin, I would like to go on record as opposed to any "firming projects" without mitigation including reasonable bypass flows for the water users in the mountains and for wildlife and environment that are now under consideration as well as any other projects that would take more water from the mountains	***Unique Comment #466-10*** *(ID 3077)**:*** *I would like to go on record as opposed to any "firming projects" without mitigation including reasonable bypass flows for the water users in the mountains and for wildlife and environment that are now under consideration as well as any other projects that would take more water from the mountains of Colorado over to the Front Range or sent on and used outside the state of Colorado. I have spent the last few weeks reviewing various data and have concerns about the integrity of the data used to support these "firming projects". Some of the data that I have studied from USGS and from Bishop-Brogden Associates states that it is speculative and estimated not based on actual stream flow data gathered and measured on any one given stream. I would personally discount all data that is not representative of actual stream flow at points where the stream flow includes any measurements taken from any point where another stream feeds into it.* **Response #466-10:** Flow related changes that have occurred in the Fraser River Basin since 1936 are due in large part to Denver Water's existing Moffat Collection System diversions, however, these impacts are attributable to past and present operations of that system, not the proposed Moffat Project. Under the proposed Moffat Project, additional diversions through the Moffat Tunnel would occur primarily during runoff months in May, June, and July (see Table H-3.1 in DEIS Appendix H). The environmental effects of additional diversions attributable to the Moffat Project were evaluated and determined to be minimal to moderate depending on the resource. Denver Water is not responsible for mitigating the effects of other reasonably foreseeable actions. FEIS Appendix M presents the plan to provide compensatory mitigation for unavoidable adverse effects associated with the Moffat Project.

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	of Colorado over to the Front Range or sent on and used outside the state of Colorado. I have spent the last few weeks reviewing various data and have concerns about the integrity of the data used to support these "firming projects". Some of the data that I have studied from USGS and from Bishop-Brogden Associates states that it is speculative and estimated not based on actual stream flow data gathered and measured on any one given stream. I would personally discount all data that is not representative of actual stream flow at points where the stream flow includes any measurements taken from any point where another stream feeds into it. Also, I see that the DEIS found that the Moffatt preferred alternative will have a detrimental effect on endangered fish species in the Colorado River system. Shouldn't that be enough to stop the project? And, I do not understand why the DEIS did not even consider the effects of impacts on riparian vegetation or surrounding wildlife or the impact existing projects are already having on the streams and their resources within Grand County! My understanding of EIS purposes is to examine and provide facts to decision making authorities? In my opinion, this one seems to fall short of those simple goals. It is common knowledge that a high percentage of the water diverted from the mountains to Denver is used to water the multitude of lawns or grassy areas. The lessons of living in a semi-arid environment do not sit well with a population that believes it needs miles of acreage of green grass. "Grass is a heavy consumer of labor, money and chemicals." I believe that stronger attention needs to be paid toward reducing the following statistic quoted from Denver Water's (http://www.denverwater.org) website: "Each day, the average Denver Water customer uses 168 gallons of water." Unless and until all of us reign in water usage, farms will fail, wildlife will die off and then humans will die. Every time I see one of the large fountains at any casino in Las Vegas, I see the water that falls from our skies evaporate into nothingness, and I wonder why anyone ever permitted using that water for such folly. Likewise, seeing large numbers of swimming pools from above makes me shake my head at such wastefulness. Throughout the suburbs of Denver, it is very common to see sprinklers running during the daylight hours-in spite of laws against it. We know that growth cannot be contained due to obvious political interests. However, I believe that continuing to grow a vast suburban area along the Front Range or in high desert areas where water is less available is the real problem area that deserves the strongest focus. Additionally, we need to look at ways to offer average citizens a means of reusing the water they pay for as well as for water catchment systems on their own properties, as is done in New Mexico and California. This will certainly sensitize the populace more toward water conservation. And, I believe that Denver Water should be promoting a staged target for their users, initially of 100 gallons per day for 2010, down to 80 gallons per day for 2011. Additional targets should be considered for each successive year to achieve water conservation so that water no longer must be diverted from mountain communities and the Front Range could become self sustaining. The water here in the mountains of Colorado is needed to sustain the wildlife (mammals and fish) as well as the smaller communities that have existed for hundreds of years. If anyone is allowed to divert 70% of the water away from the mountains that risks the destruction of habitat, which all humans and wildlife share. Here in Grand County, we are seeing the effects daily of what one small beetle can do. "Water pigs" can do vast more damage not just to Colorado but to the surrounding states and not just for one dry year. It takes centuries to build nature's ecosystems. It will take centuries to regain them. All will suffer the consequences. Where does it stop (the diversions)-70%, 80%, 90%? I urge you to stop the diversions of Colorado's mountain water and deny any firming projects further permits. Thank you. Laura Hagar Sincerely	Total environmental effects due to proposed Moffat Project and other reasonably foreseeable actions was based on a comparison with modeled Current Conditions, which reflects the current administration of the river, demands, infrastructure, and operations. It is not appropriate to evaluate the effects of future Moffat Project diversions based on comparisons with historical information or conditions as they existed before any water diversions occurred because demands have changed considerably over the course of the study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. ***Unique Comment #466-11*** *(ID 3076)**:*** *Also, I see that the DEIS found that the Moffatt preferred alternative will have a detrimental effect on endangered fish species in the Colorado River system. Shouldn't that be enough to stop the project?* **Response #466-11:** In 1990, the USFWS issued a Programmatic Biological Opinion (PBO) for activities that cause depletions in the Upper Colorado River Basin above the confluence with the Gunnison River, and has determined that projects that fit under the PBO would avoid jeopardy or adverse modification of habitat from depletion effects. The criteria are (1) having a depletion in the Upper Colorado River, (2) signing a recovery agreement, and (3) payment of a one-time fee to cover the costs of acquisition of water rights and other recovery actions to offset the depletion effects. Payment of the fee would be required as a condition of the Biological Opinion (BO) issued by the USFWS for the Moffat Project. Additionally, the Corps and Denver Water have conducted formal consultation with the USFWS for the Moffat Project EIS to ensure compliance with

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	Laura M. Hagar [redacted]	the Endangered Species Act and worked closely with the USFWS to develop appropriate mitigation. Refer to FEIS Appendix G. Compliance with the USFWS BO would be included as a special condition in a Section 404 Permit issued by the Corps. Therefore, Project impacts would be mitigated under the recovery program. ***Unique Comment #466-12*** *(ID 3075)**:*** *And, I do not understand why the DEIS did not even consider the effects of impacts on riparian vegetation or surrounding wildlife or the impact existing projects are already having on the streams and their resources within Grand County! My understanding of EIS purposes is to examine and provide facts to decision making authorities? In my opinion, this one seems to fall short of those simple goals.* **Response #466-12:** Impacts to riparian vegetation were provided in DEIS Section 4.6 and impacts to wildlife were disclosed in DEIS Section 4.7. Cumulative impacts to these resources were evaluated in FEIS Sections 5.6.6 and 5.6.7, respectively. The FEIS has been reformatted and additional information has been provided to provide a better understanding of Total Environmental Effects, including riparian and wetlands (Section 4.6.8), and wildlife (Section 4.6.9). CEQ interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in

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		that it focuses on the potential impacts of the Proposed Action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the Proposed Action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the stream segments in the Project area and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. ***Unique Comment #466-13*** *(ID 3074)**:*** *It is common knowledge that a high percentage of the water diverted from the mountains to Denver is used to water the multitude of lawns or grassy areas. The lessons of living in a semi-arid environment do not sit well with a population that believes it needs miles of acreage of green grass. "Grass is a heavy consumer of labor, money and chemicals." I believe that stronger attention needs to be paid toward reducing the following statistic quoted from Denver Water's (http://www.denverwater.org) website: "Each day, the average Denver Water customer uses 168 gallons of water." Unless and until all of us reign in water usage, farms will fail, wildlife will die off and then humans will die. Every time I see one of the large fountains at any casino in Las Vegas, I see the water that falls from our skies evaporate into nothingness, and I wonder why anyone ever permitted using that water for such folly. Likewise, seeing large numbers of swimming pools from above makes me shake my head at such*

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		wastefulness. Throughout the suburbs of Denver, it is very common to see sprinklers running during the daylight hours-in spite of laws against it. We know that growth cannot be contained due to obvious political interests. However, I believe that continuing to grow a vast suburban area along the Front Range or in high desert areas where water is less available is the real problem area that deserves the strongest focus. Additionally, we need to look at ways to offer average citizens a means of reusing the water they pay for as well as for water catchment systems on their own properties, as is done in New Mexico and California. This will certainly sensitize the populace more toward water conservation. And, I believe that Denver Water should be promoting a staged target for their users, initially of 100 gallons per day for 2010, down to 80 gallons per day for 2011. Additional targets should be considered for each successive year to achieve water conservation so that water no longer must be diverted from mountain communities and the Front Range could become self sustaining. **Response #466-13:** Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. All Denver Water Customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County

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		of Denver. Costs are recovered from each customer class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge. ***Unique Comment #466-14*** *(ID 3073)**:*** *The water here in the mountains of Colorado is needed to sustain the wildlife(mammals and fish) as well as the smaller communities that have existed for hundreds of years. If anyone is allowed to divert 70% of the water away from the mountains that risks the destruction of habitat, which all humans and wildlife share. Here in Grand County, we are seeing the effects daily of what one small beetle can do. "Water pigs" can do vast more damage not just to Colorado but to the surrounding states and not just for one dry year. It takes centuries to build nature's ecosystems. It will take centuries to regain them. All will suffer the consequences. Where does it stop (the diversions)-70%, 80%, 90%? I urge you to stop the diversions of Colorado's mountain water and deny any firming projects further permits.* **Response #466-14:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
Comment #564 Alan Sommerfeld	From: [redacted] Sent: Tuesday, March 02, 2010 8:30 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 2, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Not only do I support the above comments, I have some questions concerning the Federal Government's past responsibilities to work with the State of Colorado to protect our rivers and their in-stream flows. How much water did the US Government claim in the Fraser River and Colorado River pursuant to the Sikes Act (16 USC 670) to preserve in-stream flows and	***Unique Comment #564-10*** *(ID 3078)**:*** *Not only do I support the above comments, I have some questions concerning the Federal Government's past responsibilities to work with the State of Colorado to protect our rivers and their in-stream flows. How much water did the US Government claim in the Fraser River and Colorado River pursuant to the Sikes Act (16 USC 670) to preserve in-stream flows and fish habitat when Colorado, in the 1980s, invoked it's right to require the Federal Government to claim Reserved Water Rights necessary to protect our National Treasures, such as the Fraser and Colorado Rivers?? If the answer is NONE with respect to the Fraser and Colorado Rivers, when will the Federal Government use its other powers and work with the State of Colorado and the water users on the Front Range to ensure that our waterways are properly safeguarded?? Certainly the Federal and State governments have powers to regulate our rivers for the corporate good of their citizen. We hope all of you balance the needs to water non-native bluegrass against the need to maintain adequate in-stream flows for preserving our National Heritage in the West. When we see conservation in Arizona and California that significantly reduces the need for water, we are alarmed that the Front Range water users choose to pursue this type of project without considering reasonable mitigation measures. Please use your authority to bring things back into balance. Thank You.* **Response #564-10:** The Corps' Section 404 regulations require the Corps to consider degradation to the waters of the U.S. and minimization of potential adverse effects to the aquatic ecosystem. Additionally, the Corps' public interest review balances both protection and utilization of natural resources and includes consideration of conservation, historic and cultural

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	fish habitat when Colorado, in the 1980s, invoked it's right to require the Federal Government to claim Reserved Water Rights necessary to protect our National Treasures, such as the Fraser and Colorado Rivers?? If the answer is NONE with respect to the Fraser and Colorado Rivers, when will the Federal Government use its other powers and work with the State of Colorado and the water users on the Front Range to ensure that our waterways are properly safeguarded?? Certainly the Federal and State governments have powers to regulate our rivers for the corporate good of their citizen. We hope all of you balance the needs to water non-native bluegrass against the need to maintain adequate in-stream flows for preserving our National Heritage in the West. When we see conservation in Arizona and California that significantly reduces the need for water, we are alarmed that the Front Range water users choose to pursue this type of project without considering reasonable mitigation measures. Please use your authority to bring things back into balance. Thank You. Sincerely Alan Sommerfeld [redacted]	values, fish and wildlife values, aesthetics, etc. These resources are considered in the Corps' impact analysis and permitting decision.

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Comment #590 Sean R. Gallagher	From: [redacted] Sent: Monday, March 08, 2010 3:50 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 8, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a homeowner in both the Denver Metro area and the Fraser River Valley, I write today to ask that no additional water be diverted from the Fraser. Instream water flows are already a fraction of what they historically were, and no additional water should be diverted from the watershed. Mayor Hickenlooper should know that this will be a campaign issue, and that the Colorado votors will not stand for the election of a governor who steels	***Unique Comment #590-10*** *(ID 3079)**:*** *As a homeowner in both the Denver Metro area and the Fraser River Valley, I write today to ask that no additional water be diverted from the Fraser. Instream water flows are already a fraction of what they historically were, and no additional water should be diverted from the watershed. Mayor Hickenlooper should know that this will be a campaign issue, and that the Colorado votors will not stand for the election of a governor who steels water from one watershed to benefit his political base.* **Response #590-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	water from one watershed to benefit his political base. Sincerely Sean R. Gallagher [redacted]	

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Comment #595 Ryan J. Strong	From: [redacted] Sent: Wednesday, March 10, 2010 10:10 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 10, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. -Establish minimum flows on the Colorado River at Pumphouse to guarantee future access to boaters and continued Public and Commercial enjoyment of Little Gore Canyon. I would like to see atleast 300 cfs established as a minimum flow. Sincerely	***Unique Comment #595-10*** *(ID 3080)**:*** *Establish minimum flows on the Colorado River at Pumphouse to guarantee future access to boaters and continued Public and Commercial enjoyment of Little Gore Canyon. I would like to see at least 300 cfs established as a minimum flow.* **Response #595-10:** The Corps understands that the Bureau of Land Management's Wild and Scenic Rivers process is evaluating water flows needed to protect Outstandingly Remarkable Values on the Colorado River.

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Comment Information	Comment	Comments and Responses
	Ryan J Strong [redacted]	

Comment Information	Comment	Comments and Responses
Comment #612 Ryan Huggins	From: [redacted] Sent: Friday, March 12, 2010 4:19 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 12, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a private water consultant in sw colorado, i know a little about water. enough to know how wasteful curent M&I uses are and how critical those flows are to the ecosystem. no ecosystem, no tourism, big economic loss for everyone in the state. The NEPA process represents the voice of the people, it must be thorough and fair. please modify your DEIS to include an adequate assessment on water	***Unique Comment #612-1*** *(ID 3084)**:*** *As a private water consultant in SW Colorado, I know a little about water. enough to know how wasteful current M&I uses are and how critical those flows are to the ecosystem. no ecosystem, no tourism, big economic loss for everyone in the state. The NEPA process represents the voice of the people, it must be thorough and fair.* **Response #612-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Unique Comment #612-0*** *(ID 3083)**:*** *Please modify your DEIS to include an adequate assessment on water quality impacts on the Fraser and throughout the CO River basin. The proposed diversions (And precedent) will be felt very very far downstream look at the flush flows through the grand canyon and the improvements to wildlife habitat. This principle should be applied when assessing impacts to wildlife if the peak flows and natural hydrograph are removed, or just weakly mimicked.* **Response #612-0:** Additional water quality analysis was performed for the Fraser River and the Three Lakes area. Please see FEIS Sections 4.6.2 and 5.2. High spring flows would still occur with the Moffat Project on-line. FEIS Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the Project study area. While streamflows would be reduced in average and wet years with the Moffat Project on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park

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	quality impacts on the Fraser and throughout the CO River basin. the proposed diversions (And precedent) will be felt very very far downstream look at the flush flows through the grand canyon and the improvements to wildlife habitat. this principle should be applied when assessing impacts to wildlife if the peak flows and natural hydrograph are removed, or just weakly mimiced. the scope of the cumulative impact section should be broader. look at the San Juan RIP as an example of how broad, and what we'll be doing soon for the CO at this rate ensure your data and projections are valid, not baised or unsubstantiated and ultimately, it is inexcusable to casue irreprable environmental damage and deprive the public of the invaluable resource of a running healthy river so people in denver can water their damn lawns. until there is NO lawn and garden irrigation in denver homes, don't even think about tryin to ask for more water! Sincerely Ryan Huggins [redacted]	gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all of Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years; however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to FEIS Sections 4.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate

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		the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year floods) and large floods (10-year floods) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the ROW agreements with the USFS. The analyses of stream morphology, specifically the anticipated response of the streams to projected flow changes as the result of additional water diversions during high spring flow conditions, were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations, and an assessment of transport capacity by substrate particle size. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. ***Unique Comment #612-2*** *(ID 3082)**:*** *The scope of the cumulative impact section should be broader. look at the San Juan RIP as an example of how broad, and what we'll be doing soon for the CO at this rate ensure your data and projections are valid, not biased or unsubstantiated.* **Response #612-2:** The EIS describes the potential cumulative effects that would result from the Moffat Project combined with other projects and activities based on NEPA

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		and Section 404(b)(1) criteria. The regulations for implementing NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and RFFAs and regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 Code of Federal Regulations [CFR] 1508.7). This regulation refers only to the cumulative impact of direct and indirect effects of the Proposed Action and its alternatives when added to the aggregate effects of past, present, and RFFAs. The Section 404 regulations state that "cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems" (40 CFR 230.11[g][1]). The cumulative effects analysis for the Moffat Project evaluated past and present actions that continue to influence existing environmental conditions. The cumulative effects analysis also included reasonably foreseeable actions that, when combined with one of the Project alternatives, result in a cumulative effect on the environment. For purposes of organization of the EIS cumulative effects were evaluated in two timeframes: (1) past or ongoing present actions and (2) future actions. Each of these two timeframes includes a discussion of water-based or land-based actions.

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		Unique Comment #612-3 *(ID 3081)**:*** *And ultimately, it is inexcusable to cause irreparable environmental damage and deprive the public of the invaluable resource of a running healthy river so people in Denver can water their damn lawns. until there is NO lawn and garden irrigation in Denver homes, don't even think about trying to ask for more water!* **Response #612-3:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations.

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Comment #617 John Gabriele	From: [redacted] Sent: Sunday, March 14, 2010 3:19 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 14, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. I urge Denver Water to focus on design and construction of new infrastructure that might allow "grey water" to someday irrigate the medians, parks, green belts, and yards of Denver. This should be a viable alternative to taking new clean water from our mountain rivers and streams. We live in an arid environment, and our lifestyles should reflect that	***Unique Comment #617-10*** *(ID 3085)**:*** *I urge Denver Water to focus on design and construction of new infrastructure that might allow "grey water" to someday irrigate the medians, parks, green belts, and yards of Denver. This should be a viable alternative to taking new clean water from our mountain rivers and streams. We live in an arid environment, and our lifestyles should reflect that reality. I ask the City and Denver Water to take a leadership role in revising the water use expectations for all of us along the Front Range. Otherwise, a very big reason we live in Colorado - the sustainable, natural environment around us in the Rocky Mountains - may not be here for our children.* **Response #617-10:** Denver Water has a long history of evaluating recycled water options, beginning with the Successive Use and Potable Reuse Demonstration projects spanning from the late 1960s to the early 1990s. Denver Water has been distributing recycled water since 2004 for industrial, commercial and outdoor irrigation uses and is continuing to expand the recycled water system to ultimately free up enough potable water to serve almost 43,000 households. Refer to DEIS Section 1.3.1.4 for more information. The distribution system includes more than 50 miles of purple pipe with two major pump stations and dedicated storage facilities. In 2010, Denver Water expanded the recycled water system to serve irrigation customers, including: • East High School grounds • Fifth and Sixth Avenue medians, parks and playing fields in Lowry • Westerly Creek School grounds and Stapleton Central Park Recreation Center

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	reality. I ask the City and Denver Water to take a leadership role in revising the water use expectations for all of us along the Front Range. Otherwise, a very big reason we live in Colorado - the sustainable, natural environment around us in the Rocky Mountains - may not be here for our children. Sincerely John Gabriele [redacted]	In 2011, Denver Water constructed a major pipeline that will provide recycled water to the Rocky Mountain Arsenal National Wildlife Refuge as well as numerous parks and other green spaces in the Montbello and Gateway Park areas. The Arsenal, now a natural area, needs the water to fill lakes and to mitigate wetlands. The Denver Zoo also expanded its recycled water use in 2011 to provide water for animal exhibits and irrigation in the new Asian Tropics exhibit. However, “grey water” and recycled water are not the only ways to make use of Denver Water’s reusable water supplies. Denver Water’s primary use of reusable water is done by exchanges (53%) and the second largest use is through Denver Water’s recycled water plant (33%). As Denver Water continues to grow into its existing supplies, the amount of reusable water reused from these two sources, on average, will increase from 87% to 89%.

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Comment #814 Philip N. Cavendor	From: [redacted] Sent: Wednesday, March 17, 2010 8:39 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Comment March 17, 2010 Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. As a hydrogeologist with over 30 years of professional experience,as well as an avid fly fisherman, I have had the opportunity to review and participate in many EIS's and GEIS's in Colorado. This Draft EIS for the Moffat Collection System has no concise water balance numbers that definitively show there will be no annual water withdrawl impacts. This DEIS is incomplete and should be shelved or modified to meet other Federal and state water flow	***Unique Comment #814-1*** *(ID 5378)**:*** *As a hydrogeologist with over 30 years of professional experience, as well as an avid fly fisherman, I have had the opportunity to review and participate in many EIS's and GEIS's in Colorado. This Draft EIS for the Moffat Collection System has no concise water balance numbers that definitively show there will be no annual water withdrawal impacts. This DEIS is incomplete and should be shelved or modified to meet other Federal and state water flow rules and guidelines.* **Response #814-1:** The interaction between shallow riparian groundwater and surface water was considered and explained in the groundwater resource sections in DEIS Sections 3.2, 4.6.2, and 5.2. Surface water and groundwater are linked components of the hydrologic system in every watershed. Depending on the elevation of water levels in streams compared to the adjacent groundwater levels, water would flow between surface water bodies, streams, and aquifers. Thus, changes in surface water levels and flows may affect groundwater. The proposed diversions are expected to have minor direct impacts on groundwater, which would be limited to the local areas of the existing diversion structures. Extending the duration of diversions would cause a minor increase in the amount of groundwater recharge directly beneath the unlined portions of the diversion structures and conveyance canals, which may cause minor increases in groundwater levels in those areas during the period of the extended diversion. Localized minor increases in recharge rates and groundwater levels would cause negligible impacts to groundwater resources and the ecosystem. Increasing groundwater recharge rates beneath the diversion and conveyance structures would partly offset the

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	rules and guidelines. Sincerely Philip N. Cavendor [redacted]	minor reductions in recharge that could result from stream flow reductions in some areas. The additional diversions proposed for the Moffat Project would likely cause the dry reaches of some tributaries to extend a minor distance further downstream, and would prolong the duration of these dry sections during average years. However, in many of these stream segments, the influx of groundwater or tributary water further downstream would contribute to stream flow recovery. Reductions in stream flow attributable to the Moffat Project would be partly offset by groundwater influx to the streams. Declining stream levels would likely cause minor reductions in groundwater levels immediately adjacent to the streams. Outside of the immediate areas of the existing diversion structures and beyond the limits of existing stream channels downstream of the diversion structures, the Moffat Project would not cause adverse impacts to groundwater resources because Denver Water is not proposing to make any changes to the physical characteristics of the ground surface or soils that could affect groundwater recharge or discharge rates in any of the West Slope watersheds. Considering the tendency for misunderstanding and over-interpretation of water budget estimates, the hydrologic budget tables for the Fraser Basin, Williams Fork River Sub-Basin, and the Blue River Sub-Basin were removed from the FEIS. For the same reason, the FEIS does not include a hydrologic budget table for the Upper Colorado River. Any water budget table would be semi-quantitative at best given that insufficient information exists to develop a comprehensive, complete water balance. An annual water balance would only show how much water is going in and out of various components of the natural hydrologic system and was not required to identify or assess

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		impacts. Rather, the detailed hydrologic analysis for assessing the groundwater impacts of this Project is largely based on the PACSM and HEC-RAS, coupled with hydrogeologic experience and judgment.

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Comment #853 Todd C. Allai	From: [redacted] Sent: Monday, March 15, 2010 10:39 AM To: KOFFAT.EIS@usace.army.mil Subject: Koffat Collection System Project Comment March 15, 2010 Scott Franklin, Koffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Koffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Koffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem.	***Unique Comment #853-2*** *(ID 3087)**:*** *More is not the answer to the problem. When assessing the Moffat Firming Project DEIS, it seems to me that the possibility of using conservation is being overlooked or even ignored. Most of the Front Range communities of Colorado that rely on trans-mountain diversions for their water supply are located in a high mountain desert, but when driving through these communities you can observe acres of green lawns most likely Kentucky bluegrass (a non-native grass species which is one of the highest consumers of water). Conservation laws on outdoor water use should be considered when looking at alternatives to this project. By restricting outdoor water use and possibly even the amount or type of grass that makes up your lawn are both possibilities to reduce the amount of water that is diverted in the Upper Colorado River Basin to meet the needs of Front Range consumers. Denver Water and other front range consumers cannot continue to look to the Upper Colorado River to meet the demands of their consumers. Conservation measures must be taken on the front range also to try and reach the water demands of a rising population.* **Response #853-2:** Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But, it does have the power to enact water rules. Denver Water enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day (10:00 a.m. – 6:00 p.m.) outside watering cannot occur, prohibiting watering the street and watering in rain or strong wind and other unfavorable conditions. Denver Water employs water-use enforcement officers to make sure customers understand the rules (may lead to fines and water service being interrupted). Additionally, Denver Water requires soil amendments to be incorporated into landscaping

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	I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. More is not the answer to the problem. When assessing the Moffat Firming Project DEIS, it seems to me that the possibilty of using conservation is being overlooked or even ignored. Most of the Front Range communities of Colorado that rely on trans-mountain diversions for their water supply are located in a high mountain desert, but when driving tarough these communities you can observe acres of green lawns most likely kentucky bluegrass (a non-native grass species which is one of the highest consumers of water). Conservation laws on outdoor water use should be considered when looking at alternatives to this project. By restricting outdoor water use and possibly even the amount or type of grass that makes up your lawn are both possibilities to reduce the amount of water that is diverted in the Upper Colorado River Basin to meet the needs of Front Range consumers. Denver Water and other front range consumers cannot continue to look to the Upper Colorado River to meet the demands of their consumers. Conservation measures must be taken on the front range also to try and reach the water demands of a rising population. The Upper Colorado River Basin is already depleted by as much as 60% of its native flows, and by diverting any more water will just drive the ecosystem to a point of no return. As an individual who works with the streams of the Upper Colorado River Basin I have seen first hand the effects of lower flows with in the basin including rising temperature and its effects on the fish, macrorganisms, vegetation, and water quality. Water temperatures during mid summer are reaching the limits that cold water fishes such as trout can tolerate. The cause is clearly due to the declined level of flows due to upstream diversions. Even if the fish can tolerate the high temperatures it inhibits their ability to recover from handling by anglers. In a community that relies on their natural resources to create and keep a strong mountain economy impacts such as would be the Moffat Firming Project are detrimental not just to the health of the ecosystem but also to the economy and livelihood of the individuals that call the Upper Colorado River Basin home. Sincerely Todd C Allai [redacted]	before new taps can be placed. Denver Water also educates its customers on the benefits of xeriscaping by hosting workshops and operating xeriscape demonstration gardens in the Denver Metropolitan area. The Corps considers all appropriate and legal measures to mitigate for effects caused by any authorized project according to NEPA and Section 404 regulations. ***Unique Comment #853-1*** *(ID 3086)**:*** *The Upper Colorado River Basin is already depleted by as much as 60% of its native flows, and by diverting any more water will just drive the ecosystem to a point of no return. As an individual who works with the streams of the Upper Colorado River Basin I have seen first hand the effects of lower flows with in the basin including rising temperature and its effects on the fish, macrorganisms, vegetation, and water quality. Water temperatures during mid summer are reaching the limits that cold water fishes such as trout can tolerate. The cause is clearly due to the declined level of flows due to upstream diversions. Even if the fish can tolerate the high temperatures it inhibits their ability to recover from handling by anglers. In a community that relies on their natural resources to create and keep a strong mountain economy impacts such as would be the Moffat Firming Project are detrimental not just to the health of the ecosystem but also to the economy and livelihood of the individuals that call the Upper Colorado River Basin home.* **Response #853-1:** The Corps is not aware of a known scientific threshold or “tipping point” at which negative impacts occur to resources like water quality or aquatic species nor is the Corps aware of any

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		model or technique available that conducts "threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. For example, in fully diverted tributaries that do not contain fish and few macroinvertebrates, it is likely that the resource, at least immediately downstream of the diversion, is past the tipping point. In other stream segments, site-specific information was assessed to determine if the Project would create a tipping point effect. For all stream segments, the available information was evaluated to determine if a tipping point had been crossed or not, or if it would be crossed with the Project. This information is included in FEIS Sections 3.11, 4.11, and 5.11. Additionally, FEIS Sections 3.11, 4.6.11, and 5.11 have been revised to include further evaluations of the effects of flows and water temperatures on aquatic organisms in the Fraser River.

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Comment #854 Christopher A. Michaud	From: [redacted] Sent: Saturday, February 13, 2010 8:30 AM To: KOFFAT.EIS@usace.army.mil Subject: Koffat Collection System Project Comment February 13, 2010 Scott Franklin, Koffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Dear Scott Franklin, As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Koffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Koffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community	***Unique Comment #854-10*** *(ID 3088)**:*** *Water issues in Colorado have always been a flash point for the competing interests of development, conservation, recreational users, and environmental protection. As a long-time Coloradoan, resident of the greater Denver metro area, conscientious consumer of water (i.e. xeriscaping, watering only during prescribed hours and only when needed), and angler I sincerely hope that other options will be carefully examined and thoroughly exhausted before committing to growing the front range at the expense of the Fraser and Upper Colorado rivers.* **Response #854-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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	stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Water issues in Colorado have always been a flash point for the competing interests of development, conservation, recreational users, and environmental protection. As a long-time Coloradoan, resident of the greater Denver metro area, conscientious consumer of water (i.e. xeriscaping, watering only during prescribed hours and only when needed), and angler I sincerely hope that other options will be carefully examined and thoroughly exhausted before committing to growing the front range at the expense of the Fraser and Upper Colorado rivers. Sincerely Caristopher A. Richaud [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1035 John Murphy	MAR 4, 2010 **Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, John Murphy [redacted] Thank you!!	***Unique Comment #1035-1*** *(ID 2653)**:*** *Water use restrictions imposed on the Denver metro population could save much-need water without further damaging the wonderful fisheries left in Colorado. Make people stop wasting water in so many ways (lawns, car washing, home uses, etc.). This is the answer -- NOT killing more valuable rivers & creeks.* **Response #1035-1:** Mandatory watering restrictions are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 AF. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS.

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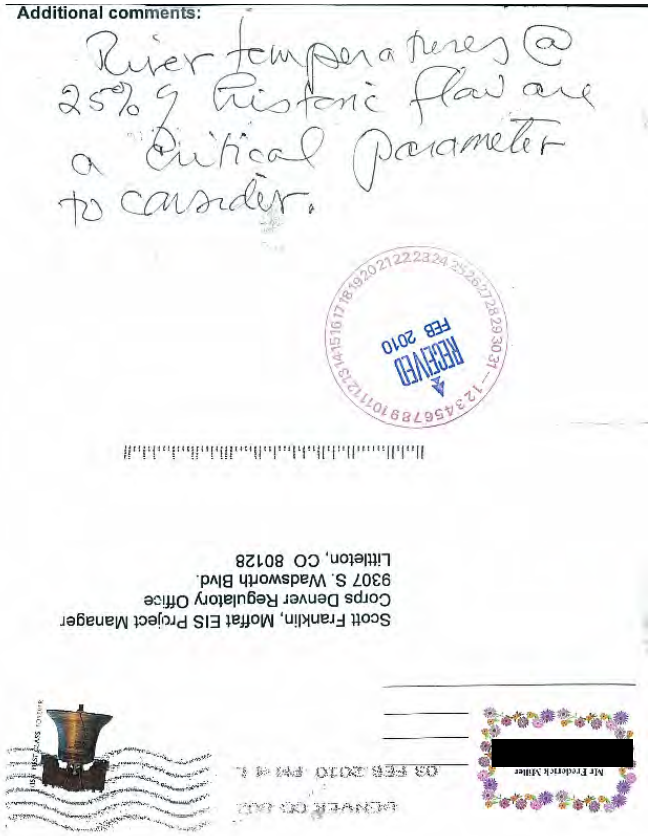
Comment Information	Comment	Comments and Responses
	Additional comments: WATER USE RESTRICTIONS imposed on THE DENVER METRO population could SAVE much-NEED WATER WITHOUT further damaging THE wonderful fisheries LEFT IN Colorado MAKE people STOP WASTING WATER in so many WAYS (LAWNS, car washing, home USES, ETC.). This is THE ANSWER — NOT killing more valuable RIVERS & CREEKS. John Murphy [redacted] Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED MAR 2010 PLEASE PLACE FIRST CLASS STAMP HERE	

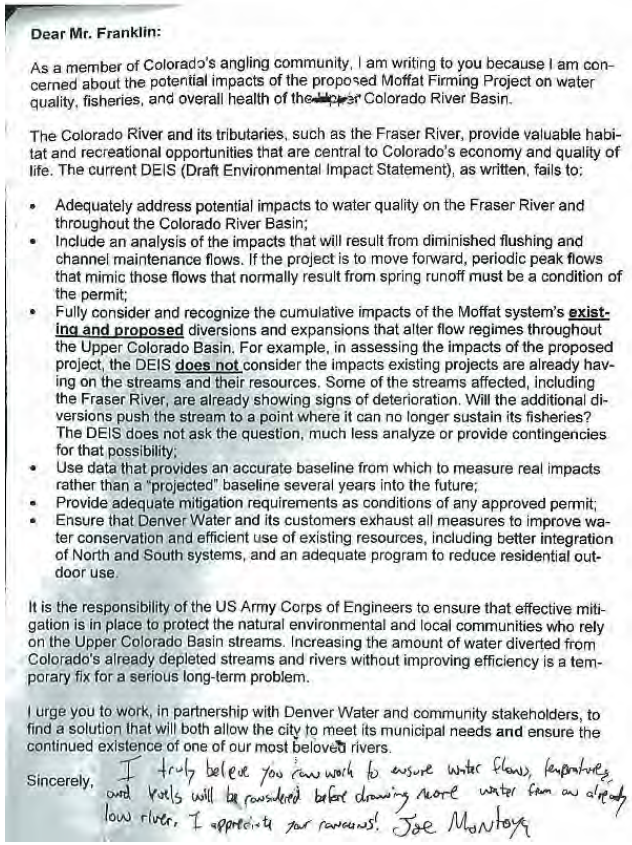
Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1036 Fred Miller	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Firming Project on water quality, fisheries, and overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs **and** ensure the continued existence of one of our most beloved rivers. Sincerely, Fred Miller	***Unique Comment #1036-1*** *(ID 2654)**:*** *River temperatures @ 25% of historic flow are a critical parameter to consider.* **Response #1036-1:** Additional water quality analysis has been performed on the Fraser River with regard to temperature. Please refer to FEIS Sections 4.6.2 and 5.2.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: River temperatures @ 25% of historic flow are a critical parameter to consider. RECEIVED FEB 2010 Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Mr Frederick Miller [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1038 Joe Montoya	 Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Firming Project on water quality, fisheries, and overall health of the ~~upper~~ Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs **and** ensure the continued existence of one of our most beloved rivers. Sincerely, I truly believe you can work to ensure water flows, temperatures, and fuels will be considered before drawing more water from an already low river. I appreciate your ranglins! Joe Montoya	***Unique Comment #1038-1*** *(ID 2655)**:*** *I truly believe you can work to ensure water flows, temperature, and fuels will be considered before draining more water from an already low river. A appreciate your ranglins!* **Response #1038-1:** Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED FEB 2010 Joseph Montoya [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1056 John Peterson	**Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely,	***Unique Comment #1056-1*** *(ID 2656)**:*** *Are water ways need to be protected for use to future generation to come.* **Response #1056-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects, including socioeconomic effects, according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 itional comments: are water ways need to Be protected for use to future Generation to come John Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED FEB 2010 John Peterson [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1057 Teresa K. Varland	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Firming Project on water quality, fisheries, and overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Teresa K. Varland	***Unique Comment #1057-1*** *(ID 2657)**:*** *I am very concerned about the cumulative effects of diversions from the Fraser. Basic conservation measures like tiered billing should be exhausted before Denver Water is permitted to take more water from the rivers.* **Response #1057-1:** All Denver Water Customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County of Denver. Costs are recovered from each customer class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	Additional comments: I am very concerned about the cumulative effects of diversions from the Fraser. Basic conservation measures like tiered billing should be exhausted before Denver Water is permitted to take more water from the River. [redacted] Teresa Lockhart Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED FEB 2010	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1058 Michael S. Hobbs	**Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am cor cerned about the potential impacts of the proposed Moffat Firming Project on water quality, fisheries, and overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable hal tat and recreational opportunities that are central to Colorado's economy and quality life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **exist ing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the propose project, the DEIS **does not** consider the impacts existing projects are already hav ing on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional di-versions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve wa ter conservation and efficient use of existing resources, including better integratio of North and South systems, and an adequate program to reduce residential out-door use. It is the responsibility of the US Army Corps of Engineers to ensure that effective miti-gation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a tem-porary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs **and** ensure the continued existence of one of our most beloved rivers. Sincerely, MICHAEL S. HOBBS	***Unique Comment #1058-1*** *(ID 2659)**:*** *I recently fished the Fraser in mid-July and it was already low and warm when other CO rivers were just receding from runoff. This EIS fails to take into account the cumulative effects of prior diversions.* **Response #1058-1:** CEQ interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 dditional comments: I RECENTLY FISHED THE FRASER IN MID JULY AND IT WAS ALREADY LOW AND WARM WHEN OTHER CO RIVERS WERE JUST RECEDING FROM RUNOFF. THIS EIS FAILS TO TAKE INTO ACCOUNT THE CUMULATIVE EFFECTS OF PRIOR DIVERSIONS. CITIES LIKE BROOMFIELD HAVE YET TO ENACT BASIC CONSERVATION MEASURES LIKE TIERED BILLING. THESE ACTIONS SHOULD BE EXHAUSTED BEFORE FURTHER DIVERSIONS. Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED [redacted]	pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversions locations modeled in PACSM. ***Unique Comment #1058-2*** *(ID 2660)**:*** *Cities like Broomfield have yet to enact basic conservation measures like tiered billing. These actions should be exhausted before further diversions.* **Response #1058-2:** All Denver Water Customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County of Denver. Costs are recovered from each customer class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1059 Bruno A. Mediate, Jr.	**Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Bruno A. Mediate Bruno A. Mediate JR.	***Unique Comment #1059-1*** *(ID 2661)**:*** *Please make the legal, binding commitment to ensure adequate flow rates to sustain these waterways as a habitat for insects and existing trout population to flourish, thus maintaining an excellent fishery.* **Response #1059-1:** FEIS Appendix M contains Denver Water's Conceptual Mitigation Plan to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: Please make the legal, binding commitment to ensure adequate flow rates to sustain these waterways as a habitat for insects and existing trout population to flourish, thus maintaining an excellent fishery. Sincerely, Bruno Medina Bruno Medina [redacted] Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1060 Jim P. Davis	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely,	***Unique Comment #1060-1*** *(ID 2662)**:*** *Please do not allow the Denver Water Board to ruin our namesake river.* **Response #1060-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: Please do not Allow the Denver Water Board to Ruin our Arkansas River. Jim P. Davis [redacted] Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1061 Paul Hansen	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Firming Project on water quality, fisheries, and overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely,	***Unique Comment #1061-1*** *(ID 2663)**:*** *I am also concerned with the future health of Gross Reservoir. The aggregate removal plan proposes to widen the channel at Osprey Point. What is now a 300 ft (to present high water mark) cliff face. This beautiful spot would be transformed into an ugly scar, visible whenever the reservoir is not at capacity, which is most of the year.* **Response #1061-1:** This impact is disclosed in DEIS Section 4.15 and has been further addressed in FEIS Section 5.17.1.1. An additional mitigation measure has been added to FEIS Section 5.17.7 to address reclamation of the quarry site. The proposed quarry site would be primarily located on USFS land and therefore Denver Water would work closely with the USFS to ensure appropriate reclamation of this site and any alternative quarry sites.

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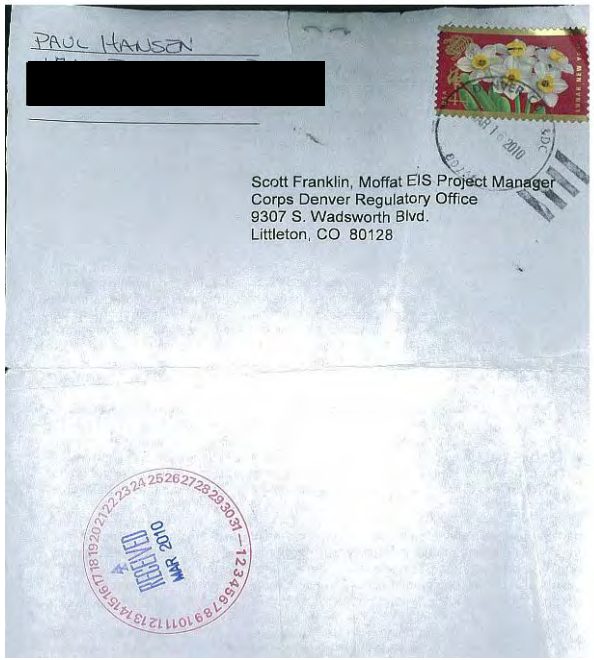
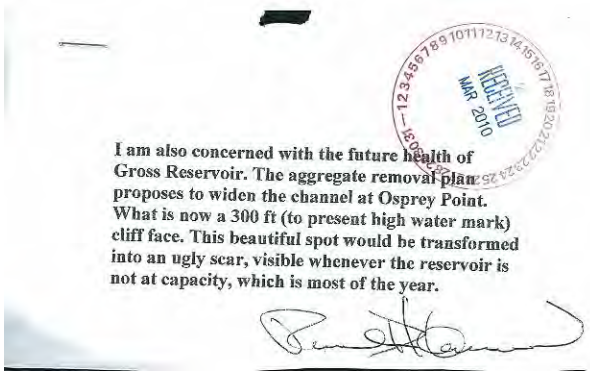
Comment Information	Comment	Comments and Responses
	 PAUL HANSEN [redacted] Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED MAR 2010  [redacted] RECEIVED MAR 2010 I am also concerned with the future health of Gross Reservoir. The aggregate removal plan proposes to widen the channel at Osprey Point. What is now a 300 ft (to present high water mark) cliff face. This beautiful spot would be transformed into an ugly scar, visible whenever the reservoir is not at capacity, which is most of the year.	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1062 Sal Sarbin	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environment and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Sal Sarbin Please Don't Remove our water!	***Unique Comment #1062-1*** *(ID 2665)**:*** *Please don't remove our water.* **Response #1062-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 [redacted] Sal Scribo RECEIVED FEB 2010	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1063 Gil Hassinger	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs **and** ensure the continued existence of one of our most beloved rivers. I remember when President Eisenhower would fish the Fraser River and wonder if the river could return to that quality. Sincerely, Gil Hassinger [redacted]	***Unique Comment #1063-1*** *(ID 2670)**:*** *I remember when President Eisenhower would fish the Fraser River and wonder if the river could return to that quality.* **Response #1063-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects, including socioeconomic effects, according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 additional comments: RECEIVED Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Gil Hassinger [redacted] DENVER CO 80202	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1064 Michael Tanis	**Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Michael Tanis	***Unique Comment #1064-1*** *(ID 2672)**:*** *Do this right. Do this responsibly. It is all our water to be used.* **Response #1064-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects, including socioeconomic effects, according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 dditional comments: DO THIS RIGHT DO THIS RESPONSIBLY IT IS ALL OUR WATER TO BE USED Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED 2010 [redacted]	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1065 Earl Logterman	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Earl Logterman Please protect our fisheries!!!	***Unique Comment #1065-10*** *(ID 2673)**:*** *Please protect our fisheries!!!* **Response #1065-10:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Earl & Lyola Logterman [redacted] DENVER CO 802 FEB 2010 PM 8 T Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED FEB 2010 additional comments:	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1067 James Foster	**Dear Mr. Franklin:** As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs **and** ensure the continued existence of one of our most beloved rivers. Sincerely, [redacted]	***Unique Comment #1067-10*** *(ID 2674)**:*** *I am a member of Pikes Peak Flyfishers and Trout Unlimited and Federal of Flyfisheries. I fish all over the state of Colorado and hope you review this letter and consider my comments inside.* **Response #1067-10:** The Corps notes the comment.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	dditional comments: I AM A MEMBER OF PIKES PEAK FLYFISHERS & TROUT UNLIMITED & FEDERAL OF FLYFISHERS I FISH ALL OVER THE STATE OF COLORADO AND HOPE YOU REVIEW THIS LETTER AND CONSIDER MY COMMENTS INSIDE. THANK YOU Jim Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED MAR 2010 James Foster [redacted]	

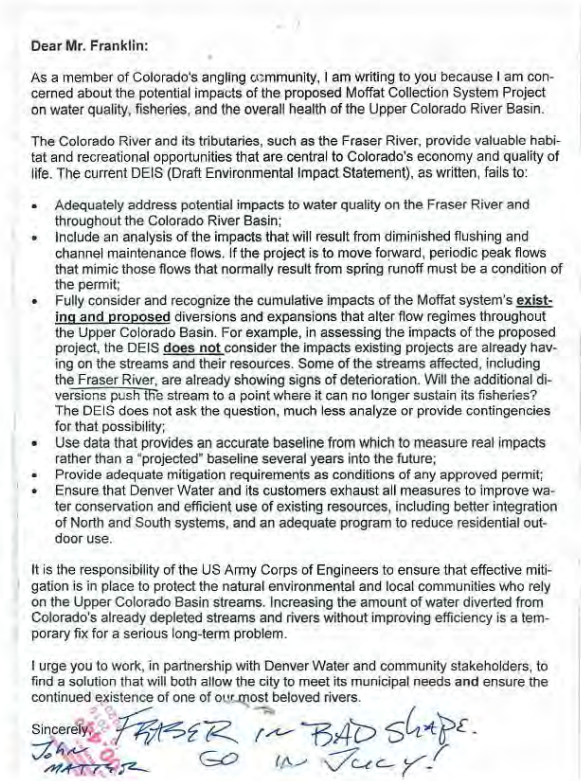
Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1070 Bill Bristol	Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Bill Bristol	***Unique Comment #1070-10*** *(ID 2675)**:*** *Pumping additional water for Denver will reduce the amount water for recreational use. Denver needs to be required to maintain all ecological concerns.* **Response #1070-10:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects, including recreation, according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	dditional comments: Pumping additional water for Denver well reduce the amount water for recreational use. Denver needs to be required to maintain all ecological concerns. Mr. Bill Blake [redacted] Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED 2010	

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1750 John Matter	 Dear Mr. Franklin: As a member of Colorado's angling community, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: • Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; • Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; • Fully consider and recognize the cumulative impacts of the Moffat system's **existing and proposed** diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS **does not** consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; • Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future; • Provide adequate mitigation requirements as conditions of any approved permit; • Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of North and South systems, and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the natural environmental and local communities who rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, John Matter FRASER IN BAD SHAPE. GO IN JULY!	***Unique Comment #1750-11*** *(ID 4437)**:*** *Fraser in bad shape. Go in July!* **Response #1750-11:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Angling Community Form Letters)

Comment Information	Comment	Comments and Responses
	 Additional comments: Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 RECEIVED MAR 2010 [redacted] $ 00.44 02 1R 0002098787 MAR 19 2010 MAILED FROM ZIP CODE 80202	

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Boating Petition Form Letters

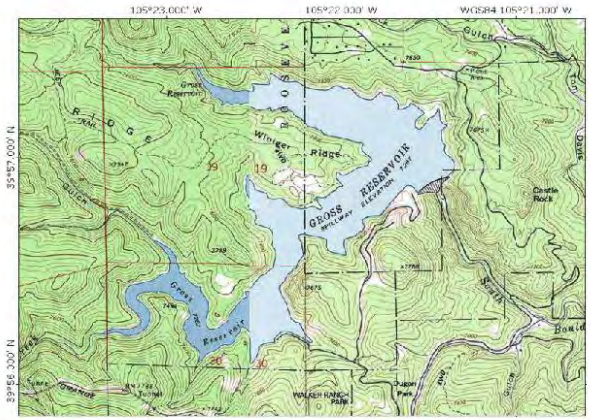
Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
BOATING PETITION FORM LETTER — STANDARD		
[The petition appearing on pages 1 through 3 here is the Boating Petition Form Letter.]	**Boating on Gross Reservoir Petition** **Email this petition to the following addresses by March 1, 2010** moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com This is a petition to request both Denver Water and the Army Corps of Engineers consider allowing power boating on Gross Reservoir. This is a 1 time limited opportunity as Denver Water will not renew their Gross Reservoir lease again for approximately 30 years. 	***Form Letter Comment #1538-1*** *(ID 4434)**:*** *I am in support of the petition. ATTACHMENT Boating on Gross Reservoir Petition Email this petition to the following addresses by March 1, 2010 moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com This is a petition to request both Denver Water and the Army Corps of Engineers consider allowing power boating on Gross Reservoir. This is a 1 time limited opportunity as Denver Water will not renew their Gross Reservoir lease again for approximately 30 years. Denver Water is considering expanding Gross Reservoir. Gross Reservoir is on the Front Range, approximately 15 miles west of Arvada. If expanded, the reservoir will become approximately the size of Chatfield Reservoir. This beautiful reservoir has been open to car top boating for a number of years. To propose the reservoir be opened to power boats please email this flyer and your comments in support of the proposal to the above email addresses and copy a tracking email to boatgross@gmail.com This proposal will allow residents to use Gross Reservoir for recreation, fishing and waterskiing. This petition proposes the following for consideration: 1. All Vessels must be less than 28 feet long and trailerable. 2. All Vessels must have less than a combined 300 hp for waterskiing 3. Both humans and dogs be allowed to swim in the water. 4. The development of one concrete boat launch with a 25 vehicle parking lot. 5. The continuation of overnight camping in designated areas per the existing facilities map. 6. No marina or fuel will be available at the reservoir. Traffic to the Reservoir should be limited due to the Reservoir's location and the size of the proposed parking lot. The light additional traffic would help support the local economy of Coal Creek Canyon including the coffee shop and the two fuel stations currently located in the canyon. If traffic*

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
	Denver Water is considering expanding Gross Reservoir. Gross Reservoir is on the Front Range, approximately 15 miles west of Arvada. If expanded, the reservoir will become approximately the size of Chatfield Reservoir. This beautiful reservoir has been open to car top boating for a number of years. To propose the reservoir be opened to power boats please email this flyer and your comments in support of the proposal to the above email addresses and copy a tracking email to boatgross@gmail.com This proposal will allow residents to use Gross Reservoir for recreation, fishing and waterskiing. This petition proposes the following for consideration: 1. All Vessels must be less than 28 feet long and trailerable. 2. All Vessels must have less than a combined 300 hp for waterskiing 3. Both humans and dogs be allowed to swim in the water. 4. The development of one concrete boat launch with a 25 vehicle parking lot. 5. The continuation of overnight camping in designated areas per the existing facilities map. 6. No marina or fuel will be available at the reservoir. Traffic to the Reservoir should be limited due to the Reservoir's location and the size of the proposed parking lot. The light additional traffic would help support the local economy of Coal Creek Canyon including the coffee shop and the two fuel stations currently located in the canyon. If traffic became excessively heavy, the petition requests boat traffic be restricted to a predetermined number of vessels selected by an annual lottery, similar to the current lottery system at Standley Lake in Westminster, Colorado. With good management and structure, Denver Water would be able to manage Gross Reservoir and provide another great body of water for recreation to boaters on the Front Range. There are many good examples of how this practice is working in the current reservoir structures in Colorado. Please review the below maps and additional information available at: http://www.denverwater.org/Recreation/GrossReservoir/ U.S. Army Corps of Engineers Scott Franklin, Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, CO 80128 Fax - (303) 979-0602 Email - moffat.eis@usace.army.mil Website - www.nwo.usace.army.mil/html/od-tl/eis-info.htm Denver Water Brian Gogas, Mail Code 415 1600 West 12th Avenue Denver, CO 80204 Fax - (303) 628-6852 Email - moffatproject@denverwater.org Website - www.denverwater.org/moffat	*became excessively heavy, the petition requests boat traffic be restricted to a predetermined number of vessels selected by an annual lottery, similar to the current lottery system at Standley Lake in Westminster, Colorado. With good management and structure, Denver Water would be able to manage Gross Reservoir and provide another great body of water for recreation to boaters on the Front Range. There are many good examples of how this practice is working in the current reservoir structures in Colorado. Please review the below maps and additional information available at: http://www.denverwater.org/Recreation/GrossReservoir/ U.S. Army Corps of Engineers Scott Franklin, Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, CO 80128 Fax – (303) 979-0602 Email – moffat.eis@usace.army.mil Website – www.nwo.usace.army.mil/html/od-tl/eis-info.htm Denver Water Brian Gogas, Mail Code 415 1600 West 12th Avenue Denver, CO 80204 Fax – (303) 628-6852 Email – moffatproject@denverwater.org Website – www.denverwater.org/moffat* **Response #1538-1:** The U.S. Army Corps of Engineers (Corps) has reviewed the recreation analysis and has provided additional information and revisions for clarity in Final Environmental Impact Statement (FEIS) Section 5.15. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA).

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
	 	

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
BOATING PETITION FORM LETTER — UNIQUE		
Comment #353 Moira Malany	From: MOIRA MALANY [mailto:[redacted] Sent: Tuesday, February 16, 2010 10:48 AM To: MOFFAT.EIS@usace.army.mil; moffatproject@denverwater.org; boatgross@gmail.com Subject: FW: Power Boating on Gross Reservoir I am in support of the petition. moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com Moira Malany [redacted] - Boating on Gross Reservoir 2.doc	***Unique Comment #353-1*** *(ID 2678)**:*** *I am in support of the petition.* **Response #353-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
	Attachments: **Boating on Gross Reservoir Petition** **Email this petition to the following addresses by March 1, 2010** moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com This is a petition to request both Denver Water and the Army Corps of Engineers consider allowing power boating on Gross Reservoir. This is a 1 time limited opportunity as Denver Water will not renew their Gross Reservoir lease again for approximately 30 years. 	

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
	Denver Water is considering expanding Gross Reservoir. Gross Reservoir is on the Front Range, approximately 15 miles west of Arvada. If expanded, the reservoir will become approximately the size of Chatfield Reservoir. This beautiful reservoir has been open to car top boating for a number of years. To propose the reservoir be opened to power boats please email this flyer and your comments in support of the proposal to the above email addresses and copy a tracking email to boatgross@gmail.com This proposal will allow residents to use Gross Reservoir for recreation, fishing and waterskiing. This petition proposes the following for consideration: 1. All Vessels must be less than 28 feet long and trailerable. 2. All Vessels must have less than a combined 300 hp for waterskiing 3. Both humans and dogs be allowed to swim in the water. 4. The development of one concrete boat launch with a 25 vehicle parking lot. 5. The continuation of overnight camping in designated areas per the existing facilities map. 6. No marina or fuel will be available at the reservoir. Traffic to the Reservoir should be limited due to the Reservoir's location and the size of the proposed parking lot. The light additional traffic would help support the local economy of Coal Creek Canyon including the coffee shop and the two fuel stations currently located in the canyon. If traffic became excessively heavy, the petition requests boat traffic be restricted to a predetermined number of vessels selected by an annual lottery, similar to the current lottery system at Standley Lake in Westminster, Colorado. With good management and structure, Denver Water would be able to manage Gross Reservoir and provide another great body of water for recreation to boaters on the Front Range. There are many good examples of how this practice is working in the current reservoir structures in Colorado. Please review the below maps and additional information available at: http://www.denverwater.org/Recreation/GrossReservoir/ U.S. Army Corps of Engineers Scott Franklin, Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, CO 80128 Fax - (303) 979-0602 Email - moffat.eis@usace.army.mil Website - www.nwo.usace.army.mil/html/od-tl/eis-info.htm Denver Water Brian Gogas, Mail Code 415 1600 West 12th Avenue Denver, CO 80204 Fax - (303) 628-6852 Email - moffatproject@denverwater.org Website - www.denverwater.org/moffat	

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
Comment #354 J. Mayer	From: MAYER, J [mailto: [redacted] Sent: Tuesday, February 16, 2010 10:59 AM To: MOFFAT.EIS@usace.army.mil; moffatproject@denverwater.org; boatgross@gmail.com Subject: FW: Power Boating on Gross Reservoir Please accept this as my petition to seek power boating on Gross Reservoir. I had submitted an email previously and spoken with Denver Water and this will formalize my outline for the request. I am sharing this with the Boating Community to show their support. Please let me know if you have any questions. Regards, J. Mayer	***Unique Comment #354-1*** *(ID 2679)**:*** *Please accept this as my petition to seek power boating on Gross Reservoir. I had submitted an email previously and spoken with Denver Water and this will formalize my outline for the request. I am sharing this with the Boating Community to show their support. Please let me know if you have any questions.* **Response #354-1:** Denver Water is not considering allowing motor boating on Gross Reservoir as a part of the Moffat Collection System Project (Moffat Project or Project). The existing Federal Energy Regulatory Commission (FERC) license specifies only car-top non-motorized boats and Denver Water has made a commitment that the recreational opportunities with an enlarged Gross Reservoir would be identical to that identified in its current FERC license.

Comment-Response Report (Boating Petition Form Letters)

Comment Information	Comment	Comments and Responses
	Attachments: **Boating on Gross Reservoir Petition** **Email this petition to the following addresses by March 1, 2010** moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com This is a petition to request both Denver Water and the Army Corps of Engineers consider allowing power boating on Gross Reservoir. This is a 1 time limited opportunity as Denver Water will not renew their Gross Reservoir lease again for approximately 30 years. 	

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	Denver Water is considering expanding Gross Reservoir. Gross Reservoir is on the Front Range, approximately 15 miles west of Arvada. If expanded, the reservoir will become approximately the size of Chatfield Reservoir. This beautiful reservoir has been open to car top boating for a number of years. To propose the reservoir be opened to power boats please email this flyer and your comments in support of the proposal to the above email addresses and copy a tracking email to boatgross@gmail.com This proposal will allow residents to use Gross Reservoir for recreation, fishing and waterskiing. This petition proposes the following for consideration: 1. All Vessels must be less than 28 feet long and trailerable. 2. All Vessels must have less than a combined 300 hp for waterskiing 3. Both humans and dogs be allowed to swim in the water. 4. The development of one concrete boat launch with a 25 vehicle parking lot. 5. The continuation of overnight camping in designated areas per the existing facilities map. 6. No marina or fuel will be available at the reservoir. Traffic to the Reservoir should be limited due to the Reservoir's location and the size of the proposed parking lot. The light additional traffic would help support the local economy of Coal Creek Canyon including the coffee shop and the two fuel stations currently located in the canyon. If traffic became excessively heavy, the petition requests boat traffic be restricted to a predetermined number of vessels selected by an annual lottery, similar to the current lottery system at Standley Lake in Westminster, Colorado. With good management and structure, Denver Water would be able to manage Gross Reservoir and provide another great body of water for recreation to boaters on the Front Range. There are many good examples of how this practice is working in the current reservoir structures in Colorado. Please review the below maps and additional information available at: http://www.denverwater.org/Recreation/GrossReservoir/ U.S. Army Corps of Engineers Scott Franklin, Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, CO 80128 Fax - (303) 979-0602 Email - moffat.eis@usace.army.mil Website - www.nwo.usace.army.mil/html/od-tl/eis-info.htm Denver Water Brian Gogas, Mail Code 415 1600 West 12th Avenue Denver, CO 80204 Fax - (303) 628-6852 Email - moffatproject@denverwater.org Website - www.denverwater.org/moffat	

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Comment Information	Comment	Comments and Responses
Comment #355 Manuel Salgado, [redacted]	From: Salgado, Manuel (mailto:[redacted] Sent: Tuesday, February 16, 2010 12:32 PM To: MOFFAT.EIS@usace.army.mil; moffatproject@denverwater.org; boatgross@gmail.com Subject: FW: Power Boating on Gross Reservoir I Support power boating. Manuel Salgado [redacted] Boating on Gross Reservoir 1.doc	***Unique Comment #355-1*** *(ID 2680)**:*** *I Support power boating.* **Response #355-1:** The Board of Water Commissioners (Denver Water) is not considering allowing motor boating on Gross Reservoir as a part of the Moffat Project. The existing FERC license specifies only car-top non-motorized boats and Denver Water has made a commitment that the recreational opportunities with an enlarged Gross Reservoir would be identical to that identified in its current FERC license.

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	Attachments: **Boating on Gross Reservoir Petition** **Email this petition to the following addresses by March 1, 2010** moffat.eis@usace.army.mil moffatproject@denverwater.org boatgross@gmail.com This is a petition to request both Denver Water and the Army Corps of Engineers consider allowing power boating on Gross Reservoir. This is a 1 time limited opportunity as Denver Water will not renew their Gross Reservoir lease again for approximately 30 years. 	

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	Denver Water is considering expanding Gross Reservoir. Gross Reservoir is on the Front Range, approximately 15 miles west of Arvada. If expanded, the reservoir will become approximately the size of Chatfield Reservoir. This beautiful reservoir has been open to car top boating for a number of years. To propose the reservoir be opened to power boats please email this flyer and your comments in support of the proposal to the above email addresses and copy a tracking email to boatgross@gmail.com This proposal will allow residents to use Gross Reservoir for recreation, fishing and waterskiing. This petition proposes the following for consideration: 1. All Vessels must be less than 28 feet long and trailerable. 2. All Vessels must have less than a combined 300 hp for waterskiing 3. Both humans and dogs be allowed to swim in the water. 4. The development of one concrete boat launch with a 25 vehicle parking lot. 5. The continuation of overnight camping in designated areas per the existing facilities map. 6. No marina or fuel will be available at the reservoir. Traffic to the Reservoir should be limited due to the Reservoir's location and the size of the proposed parking lot. The light additional traffic would help support the local economy of Coal Creek Canyon including the coffee shop and the two fuel stations currently located in the canyon. If traffic became excessively heavy, the petition requests boat traffic be restricted to a predetermined number of vessels selected by an annual lottery, similar to the current lottery system at Standley Lake in Westminster, Colorado. With good management and structure, Denver Water would be able to manage Gross Reservoir and provide another great body of water for recreation to boaters on the Front Range. There are many good examples of how this practice is working in the current reservoir structures in Colorado. Please review the below maps and additional information available at: http://www.denverwater.org/Recreation/GrossReservoir/ U.S. Army Corps of Engineers Scott Franklin, Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, CO 80128 Fax - (303) 979-0602 Email - moffat.eis@usace.army.mil Website - www.nwo.usace.army.mil/html/od-tl/eis-info.htm Denver Water Brian Gogas, Mail Code 415 1600 West 12th Avenue Denver, CO 80204 Fax - (303) 628-6852 Email - moffatproject@denverwater.org Website - www.denverwater.org/moffat	

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Boulder County Form Letters

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Comment Information	Comment	Comments and Responses
BOULDER COUNTY FORM LETTER — STANDARD		
[The Boulder County Standard Form Letter shown here on pages 1 and 2 was submitted by all the commenters listed below.] **The Environmental Group of Coal Creek and Gross Dam Communities' Committee on Gross Dam** Comment #1102 James Gritz Comment #1103 Marguerite Robinson Comment #1104 Sherill Kumbayi Comment #1105 Gretchen Wiegand Comment #1106 D. Pieter Strauss Comment #1107 Jennie Curtis Comment #1108 Fern Lund Comment #1109 Stephen Robinson	To: Boulder County Commissioners From: The Environmental Group of Coal Creek and Gross Dam Communities' Committee on Gross Dam Reservoir. Bob Shellenberger, Chair. 303 642 0481 Re: Expansion of Gross Dam Reservoir February 15, 2010 At a Feb. 4, 2010 community meeting in Coal Creek Canyon, more than 90 residents voiced strong objections to Denver Water's proposal, the Moffat Collection System Project. We urge Boulder County not to approve the expansion of Gross Dam Reservoir. • Boulder County is internationally known as a county that is green in its planning avoiding out of control development, uses resources wisely and is a model for water conservation. It would be a step backward for Boulder County to approve the Moffat Collection System Project supporting a project poor in conservation, invalid modeling assumptions that fail to establish a need for the massive project, and a project resulting in degradation of our rivers and quality of life for the citizens of Boulder County. • Approving and supporting the Moffat Collection System Project sends a message of "business as usual" meaning unrestricted and extravagant use of water along the front range and rampant development. • Healthy western slope rivers are essential to the well-being of Boulder and Colorado residents whether it be for personal or recreational use. The Moffat project will decrease flows in the Fraser, Colorado, Williams Fork and Blue Rivers. Denver Water would increase Fraser River diversion to 80%. In 2005 the American Rivers Association already ranked the Fraser as the 3rd Most Endangered River in the US. • Quality of life will deteriorate for the residents of Coal Creek Canyon and Gross Dam during construction with (a) traffic congestion of haul trucks, lumber trucks and worker vehicles up and down the canyon, over four years. (b) The sound of diesel engines, rock crushing, a cement plant and earth moving equipment, day and night at times, for four years. (c) There will be major traffic safety issues. • The loss of 20,000-30,000 trees is a major, permanent impact. The carbon sink is gone. • Boulder does not need the extra water as seen in Volume I, 2003 Drought Response Plan, points out that Boulder can meet its water needs even when the 1 in 300 year drought of 2002-2003 occurred. "Despite this extraordinary drought, the city was able to supply all essential health and safety water needs, and still provide nearly 60 percent of the normal supply of water for landscaping and other essential outdoor uses." (p. 6). The Drought Response Plan also identifies numerous ways in which Boulder can used enhanced conservation to save even more water for drought years. • Denver does not need the water; its projections are flawed. Denver Water based its projections on savings from conservation for the years 1980-1997 so that Denver customers could only conserve 16,000 AF/yr by 2030. (See DEIS, Ch. 1-10-12). They failed to base their projection of need on recent conservation data. 1. During the drought of 2002-2005, Denver water maintained a surplus of over 30,000 AF. 2. In 2009, 9 billion gallons of water were "saved" due to cool rainy weather and conservation (watering a few minutes less each week). Nine billion gallons equals 27,000 AF. 3. Water for landscaping is 47% of total residential use in the Denver area. FACT: innovative conservation would cancel the projected shortfall, year after year. The Moffat Project is not needed.	***Form Letter Comment #1079-1*** *(ID 2799)**:*** *At a Feb. 4, 2010 community meeting in Coal Creek Canyon, more than 90 residents voiced strong objections to Denver Water's proposal, the Moffat Collection System Project. We urge Boulder County not to approve the expansion of Gross Dam Reservoir.* **Response #1079-1:** Prior to making decisions on the proposed Moffat Collection System Project (Moffat Project or Project), the U.S. Army Corps of Engineers (Corps) will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA). ***Form Letter Comment #1079-2*** *(ID 2798)**:*** *Boulder County is internationally known as a county that is green in its planning avoiding out of control development, uses resources wisely and is a model for water conservation. It would be a step backward for Boulder County to approve the Moffat Collection System Project supporting a project poor in conservation, invalid modeling assumptions that fail to establish a need for the massive project, and a project resulting in degradation of our rivers and quality of life for the citizens of Boulder County.* **Response #1079-2:** The opposition to the Moffat Project is noted. ***Form Letter Comment #1079-3*** *(ID 2797)**:*** *Approving and supporting the Moffat Collection System Project sends a message of "business as usual" meaning unrestricted and extravagant use of water along the front range and rampant development.*

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Comment #1110 Leslie Faurot Comment #1111 Carla Owsley Comment #1112 David L. Perrin Comment #1113 Ammon Balaster Comment #1114 Wendy Wilson Comment #1115 Ann Strauss Comment #1116 Jack Coddington Comment #1117 Kit Coddington	Please stop this project and the mindset that leads to policies and planning that bank on ever increasing water supply rather than on lowering demand. Continue to make Boulder County a leader in the world of green energy and water conservation. NAME PRINTED SIGNATURE NAME PRINTED SIGNATURE	**Response #1079-3:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Form Letter Comment #1079-4*** *(ID 2796)**:*** *Healthy western slope rivers are essential to the well-being of Boulder and Colorado residents whether it be for personal or recreational use. The Moffat project will decrease flows in the Fraser, Colorado, Williams Fork and Blue Rivers. Denver Water would increase Fraser River diversion to 80%. In 2005 the American Rivers Association already ranked the Fraser as the 3rd Most Endangered River in the US.* **Response #1079-4:** The Draft Environmental Impact Statement (DEIS) Section 3.1 presents information that demonstrates the hydrologic effects of upstream transbasin diversions and increased water use over time in the upper Fraser River Basin and along the Colorado River mainstem at Windy Gap. DEIS Table 3.1-10 summarizes the effects of historical Moffat Collection System diversions on native flow at the Fraser River at Winter Park gage. On average, Board of Water Commissioners (Denver Water) diverted approximately 50 percent (%) of the average annual native flow at the Fraser River at Winter Park gage for the 30-year period from 1975 through 2004. The percentage of native flow diverted by Denver Water depends on the location in the basin. Denver Water would divert over 90% of the native flow with the Moffat Project on-line from some small tributaries that do not have bypass flow requirements. Denver Water would divert about 76% of the native flow at the Winter Park gage with the Moffat Project on-line. At the Granby gage located near the mouth of the Fraser River, Denver Water's average annual Moffat Collection System diversions represent approximately 41% of the native flow. Tables showing the percentage of native flow diverted by Denver Water under Current Conditions, Full

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		Use of the Existing System, and the proposed Moffat Project flow were added to Final Environmental Impact Statement (FEIS) Appendix H. Information gained from www.americanrivers.org indicates that American Rivers reviews nominations for the "America's Most Endangered Rivers" report from river groups and concerned citizens across the country. Per the website, the report is not a list of the nation's "worst" or most polluted rivers, but rather it highlights rivers facing management decisions. Since it appears that American Rivers' criteria for evaluation of river condition is subjective, the comment is simply noted. ***Form Letter Comment #1079-5*** *(ID 2795)**:*** *Quality of life will deteriorate for the residents of Coal Creek Canyon and Gross Dam during construction with (a) traffic congestion of haul trucks, lumber trucks and worker vehicles up and down the canyon, over four years. (b) The sound of diesel engines, rock crushing, a cement plant and earth moving equipment, day and night at times, for four years. (c) There will be major traffic safety issues.* **Response #1079-5:** The Corps acknowledges that there would be delays caused by slow-moving construction vehicles on County Road (CR) 77S, State Highways (SHs) 72, 93, 128, U.S. Highway (US) 287, Arapahoe Road (US 287 bypass to County Line Road), County Line Road, and CR 2050. During construction, the volume of construction traffic could vary day-to-day and month-to-month, depending on the type and number of construction activities taking place. Based on preliminary construction plans, about 22 haul and supply trucks could travel to Gross Dam each day on average. During the peak construction period, about 35 trucks could deliver material daily. Additional trucks could be used to remove trees and debris from the reservoir site at the appropriate time. The number of commuting workers could vary considerably. An average

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		of 60 commuter vehicles could make daily trips to Gross Reservoir, with about 100 expected on the busiest construction days. Denver Water would require contractors to encourage carpooling to the work site. Denver Water met with CDOT to discuss the potential increase in truck traffic on SH 72 during construction as well as options for managing and mitigating the Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including improving turnouts on SH 72 for slow-moving traffic. Denver Water would work with Jefferson and Boulder counties to address local traffic concerns. For purposes of EIS analysis, the Corps assumes construction equipment used by the contractors would function as designed and conform to applicable noise emission standards. Denver Water would comply with all applicable noise ordinances and work with Boulder County to identify reasonable and feasible noise abatement measures for the Project construction period. The Corps also assumes that construction contractors would comply with health and safety plans and codes instituted by their respective companies and Denver Water. A contractor hired by Denver Water would be in charge of construction activity, including safety compliance. Denver Water also plans to have staff on-site during construction. ***Form Letter Comment #1079-6*** *(ID 2794)**:*** *The loss of 20,000-30,000 trees is a major, permanent impact. The carbon sink is gone.* **Response #1079-6:** Impacts from tree removal were addressed in the FEIS for transportation, air quality, noise, and visual resources, as well as in soils and biological resources. The effects of tree removal on noise were analyzed in DEIS Section 4.12.1. Impacts were assessed as temporary and moderate, and would be similar to other

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		construction noise. Denver Water would work closely with the Corps and U.S. Forest Service to ensure tree removal and restoration efforts are consistent with National Forest standards. Greenhouse gas emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in Section 5.13 (Air Quality). The calculations include on-road exhaust emissions from worker commuter vehicles, delivery trucks, and all other Project construction equipment. Detailed emission calculation spreadsheets and references are presented in Appendix I. Information about the carbon value of the trees at Gross Reservoir has been added to the vegetation analysis in FEIS Section 5.7. ***Form Letter Comment #1079-7*** *(ID 2793)**:*** *Boulder does not need the extra water as seen in Volume I, 2003 Drought Response Plan, points out that Boulder can meet its water needs even when the 1 in 300 year drought of 2002-2003 occurred. "Despite this extraordinary drought, the city was able to supply all essential health and safety water needs, and still provide nearly 60 percent of the normal supply of water for landscaping and other essential outdoor uses." (p. 6). The Drought Response Plan also identifies numerous ways in which Boulder can use enhanced conservation to save even more water for drought years. • Denver does not need the water; its projections are flawed. Denver Water based its projections on savings from conservation for the years 1980-1997 so that Denver customers could only conserve 16,000 AF/yr by 2030. (See DEIS, Ch. 1-10-12). They failed to base their projection of need on recent conservation data. 1. During the drought of 2002-2005, Denver water maintained a surplus of over 30,000 AF. 2. In 2009, 9 billion gallons of water were "saved" due to cool rainy weather and conservation (watering a few minutes less each week). Nine billion gallons equals 27,000 AF. 3. Water for*

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		landscaping is 47% of total residential use in the Denver area. FACT: innovative conservation would cancel the projected shortfall, year after year. The Moffat Project is not needed. **Response #1079-7:** The surplus referred to the comment is not a surplus but rather is Denver Water's 30,000 acre-feet (AF) safety factor (i.e., Strategic Water Reserve). The safety factor is intended to protect against a host of uncertainties, including the constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. A safety factor is a commonly accepted practice for major water utilities. As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 AF of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand would be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF would be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association

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		was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. ***Form Letter Comment #1079-8*** *(ID 2792)**:*** *Please stop this project and the mindset that leads to policies and planning that bank on ever increasing water supply rather than on lowering demand. Continue to make Boulder County a leader in the world of green energy and water conservation.* **Response #1079-8:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Coal Creek Canyon Form Letters

Comment-Response Report (Coal Creek Canyon Form Letters)

Comment Information	Comment	Comments and Responses
COAL CREEK CANYON FORM LETTER — STANDARD		
[The Coal Creek Canyon Standard Form Letter shown here on pages 1 and 2 was submitted by all the commenters listed below.] **Environmental Group and Residents of Coal Creek Canyon/Gross Dam Communities** Comment #1087 Sherill Kumbayi Comment #1088 Gretchen Wiegand Comment #1089 Jennie Curtis Comment #1090 Dave Perrin Comment #1091 Stephen Robinson Comment #1092 Carla Owsley Comment #1093 Leslie Faurot Comment #1094 James Gritz Comment #1095 Kathy Gritz	February 23, 2010 Mayor John Hickenlooper 1437 Bannock Street, Suite 350 Denver, CO 80202 Dear Mayor Hickenlooper, Congratulations on your decision to run for governor. In your press conference announcing this decision, you spoke of the value of the western slope—the beauty, the rivers and recreation—fishing in particular. This is encouraging. As mayor, you appoint the members of the Denver Board of Water Commissioners and know that for many years Denver Water has planned to expand Gross Reservoir in Boulder County, diverting more water from the western slope. Denver Water projects an annual shortfall of 18,000 acre feet (AF) by 2030 and of course, drought at some point, and wants more water to come from the northern system to "balance" the load on the southern system. For this, an increase in Gross Reservoir of 72,000 AF is needed, it is claimed, with a surplus of 54,000 AF and 18,000 AF firm yield. To put these figures in perspective: 1. During the drought of 2002-2005 a surplus of over 30,000 AF was maintained. 2. 42% of customer water use in summer is for lawns. 3. Last summer **9 billion gallons** of water were "saved" due to cool rainy weather and conservation (watering a few minutes less each week). Nine billion gallons equals 27,000 AF. 4. Denver water estimates that in two decades, customers will conserve only 16,000 AF a year, leaving the shortfall of 18,000 AF/yr. The Federal Energy Regulatory Commission and the U.S. Army Corps of Engineers are the permitting agencies and they are reviewing Denver Water's proposal, called the Moffat Collection System Project. The Corps is mandated to examine alternatives that are reasonable and common sense. Several alternatives are described in the Draft Environmental Impact Statement, all involving expansion of the Gross reservoir, except of course, the No Action alternative. Of the alternatives examined by the Corps, the largest expansion of the dam and reservoir is the Proposed Action being promoted by Denver Water. We believe that all the "alternatives" are **invalid** because an important reasonable and common sense approach to sufficient water for years to come was not considered—innovative conservation. In fact, in describing the No Action alternative, the Draft Environmental Impact Statement reveals a clear bias against conservation, using the loaded term "restriction," saying that restrictions would result in negative perception of the Denver area, lead to decreasing property values, adverse effects on business and, ". . . consumers may feel they experience a reduced quality of life" (p. 4-499). With a bias like that, the claim that Denver customers could only conserve 16,000 AF/yr by 2030 was not questioned. The data say otherwise, but rather than campaigning for conservation, it is considered a threat—even lowering property values.	***Form Letter Comment #1078-1*** *(ID 2791)**:*** *Congratulations on your decision to run for governor. In your press conference announcing this decision, you spoke of the value of the western slope—the beauty, the rivers and recreation—fishing in particular. This is encouraging. As mayor, you appoint the members of the Denver Board of Water Commissioners and know that for many years Denver Water has planned to expand Gross Reservoir in Boulder County, diverting more water from the western slope. Denver Water projects an annual shortfall of 18,000 acre feet (AF) by 2030 and of course, drought at some point, and wants more water to come from the northern system to "balance" the load on the southern system. For this, an increase in Gross Reservoir of 72,000 AF is needed, it is claimed, with a surplus of 54,000 AF and 18,000 AF firm yield.* **Response #1078-1:** The U.S. Army Corps of Engineers (Corps) notes the comment. ***Form Letter Comment #1078-2*** *(ID 2790)**:*** *To put these figures in perspective: 1. During the drought of 2002-2005 a surplus of over 30,000 AF was maintained. 2. 42% of customer water use in summer is for lawns. 3. Last summer 9 billion gallons of water were "saved" due to cool rainy weather and conservation (watering a few minutes less each week). Nine billion gallons equals 27,000 AF. 4. Denver water estimates that in two decades, customers will conserve only 16,000 AF a year, leaving the shortfall of 18,000 AF/yr.* **Response #1078-2:** 1. Yes, during the 2002-2005 drought the Board of Water Commissioners (Denver Water) maintained a 30,000 acre-feet (AF) Strategic Water Reserve. Refer to Draft Environmental Impact Statement (DEIS) Section 1.4.1.5 for a discussion of this reserve.

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Comment #1096 Marguerite Robinson Comment #1097 Wendy Wilson Comment #1098 Ammon Balaster Comment #1099 Ann Strauss Comment #1100 Jack Coddington Comment #1101 Kit Coddington	On the other hand, on its website Denver Water tells consumers, "Conservation is a less expensive water supply option than . . . building new storage facilities." The "build a bigger dam" approach—with its destruction of land, several years of degradation of quality of life for those affected by the construction, and further depletion of the western slope rivers—is a poor and antiquated solution to water supply. Further, a bigger dam only postpones the inevitable—innovative conservation. Why not start now? There is no doubt that water conservation can negate the shortfall, year after year, while keeping our surplus high, and no doubt that the $353 million to be spent on the dam would go a long way in funding research and development for innovation conservation, benefiting the community for years to come. A bigger dam cannot do that. We are writing to you because as Mayor, "The buck stops with you." Please stop this project and the mindset that leads to policies and planning that bank on ever increasing water supply rather than on lowering demand. We request that you ask the Board of Water Commissioners to stop the Gross dam project, to go back to the drawing board, and to make water conservation the hallmark of Denver Water. **Denver could be the water conservation capital of the country.** In your campaign for governor this approach would serve you well all across the state, and as residents of Denver and Colorado, we would be so proud. And as angry residents of Coal Creek Canyon and Gross Dam communities we would be so relieved. Respectfully, Bob Shellenberger, Chair Gross Dam Expansion Committee The Environmental Group and residents of Coal Creek Canyon / Gross Dam Communities. NAME PRINTED / SIGNATURE / NAME PRINTED / SIGNATURE Sherill Kumbary / Sherill Kumbary / Kit Coddington / Kit Coddington Gretchen Wiegand / Gretchen Wiegand Jennie Curtis / Jennie Curtis Dave Perrin / Dave Perrin Styler / Styler Carla Owsley / Carla Owsley Leslie Fabiot / Leslie Fabiot James Gritz / James Gritz Kathy Gritz / Kathy Gritz Marguerite Robinson / Marguerite Robinson Wendy Wilson / Wendy Wilson Ammon Balaster / Ammon Balaster Ann Williams / Ann Strauss JACK CODDINGTON / Jack Coddington	2. Presently, Denver Water estimates that 50 percent (%) of residential customer water use is for lawns. 3. Since 2002, Denver Water's customers have reduced their water use by 20% due to conservation programs promoted by Denver Water. 4. This is a correct statement. Refer to DEIS Section 1.4 for a discussion of Denver Water's estimated shortfall. ***Form Letter Comment #1078-3*** *(ID 2789)**:*** *The Federal Energy Regulatory Commission and the U.S. Army Corps of Engineers are the permitting agencies and they are reviewing Denver Water's proposal, called the Moffat Collection System Project. The Corps is mandated to examine alternatives that are reasonable and common sense. Several alternatives are described in the Draft Environmental Impact Statement, all involving expansion of the Gross reservoir, except of course, the No Action alternative. Of the alternatives examined by the Corps, the largest expansion of the dam and reservoir is the Proposed Action being promoted by Denver Water.* **Response #1078-3:** Although the Applicant has selected a preferred alternative (Proposed Action), the Corps did not identify a least environmentally damaging practicable alternative (LEDPA) in the DEIS. The Corps will make a determination of the LEDPA based on its review of the information and analysis contained in the Final Environmental Impact Statement (FEIS), per the Corps' Section 404 regulations. The alternative screening process (Alternatives Screening Report, Corps 2007) did consider the other water sources (agricultural water transfer, conjunctive use, and municipal reuse) in combination with storage components other than Gross Reservoir. These various

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		water sources and 29 storage components from the “long list” passed the initial Screen 1A, as discussed in DEIS Section 2.1.2, Screen 1B. Two methods of acquiring agricultural water (Identification [ID] 601) were reviewed: purchase or dry-year lease. It was assumed that the agricultural rights were available downstream of the Metro Wastewater Reclamation District Plant. Other locations, including the Arkansas River Basin, were considered in Screen 1A; however, they were eliminated by the criterion LG1 (Logistics – Geographic Location), must be within the State of Colorado and in the South Platte and mainstem Colorado river basins. The justification for this criterion, as stated in Table 2-1, is still valid: “Exploring options outside the South Platte and mainstem Colorado river basin would necessitate acquiring water rights from new filings, purchasing and transferring existing water rights, and developing extensive new infrastructure to import the water. Obtaining water from the Gunnison, Yampa, White, North Platte, Rio Grande, San Juan/Dolores, or Arkansas river basins would be extremely difficult, if not impossible, in a timeframe consistent with the Purpose and Need.” This is also a reasonable criterion to use because it did not eliminate a significant number of the water source options being considered in the screening. Numerous alternatives were configured in Screen 1b that do not include expansion of Gross Reservoir. Leyden Gulch Reservoir, plus several other storage components such as Ralston Reservoir, Spring Creek Reservoir, and Box Elder shallow aquifer were used to configure Project alternatives. Refer to Alternatives 6a and 6b, 7a and 7b, 8b, 9a and 9b, 10b–10e, 11a, 12a, and 13b in Table 2-4. Each of these alternatives was legitimately screened out in Screen 1c or Screen 2 for various reasons. The multi-step process of screening a variety of water sources other than Moffat Tunnel water and storage components other than enlarging Gross Reservoir is justified and well-documented.

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		Form Letter Comment #1078-4 *(ID 2788)**:*** *We believe that all the "alternatives" are invalid because an important reasonable and common sense approach to sufficient water for years to come was not considered—innovative conservation. In fact, in describing the No Action alternative, the Draft Environmental Impact Statement reveals a clear bias against conservation, using the loaded term "restriction," saying that restrictions would result in negative perception of the Denver area, lead to decreasing property values, adverse effects on business and, "…consumers may feel they experience a reduced quality of life" (p. 4-499). With a bias like that, the claim that Denver customers could only conserve 16,000 AF/yr by 2030 was not questioned. The data say otherwise, but rather than campaigning for conservation, it is considered a threat—even lowering property values. On the other hand, on its website Denver Water tells consumers, "Conservation is a less expensive water supply option than…building new storage facilities." The "build a bigger dam" approach—with its destruction of land, several years of degradation of quality of life for those affected by the construction, and further depletion of the western slope rivers—is a poor and antiquated solution to water supply. Further, a bigger dam only postpones the inevitable—innovative conservation. Why not start now? There is no doubt that water conservation can negate the shortfall, year after year, while keeping our surplus high, and no doubt that the $353 million to be spent on the dam would go a long way in funding research and development for innovation conservation, benefiting the community for years to come. A bigger dam cannot do that.* **Response #1078-4:** While Denver Water states: "Customers' disciplined conservation efforts are helping us to keep the cost of supplying water down over the long term, conservation is a cheaper supply option than building new storage facilities." Denver Water also acknowledges that: "Yet even with a successful conservation ethic, our

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		community will need new water supplies in the future. To meet those needs, we plan to expand our recycled water system, enlarge Gross Reservoir by 18,000 AF and continue converting old gravel pits into new water storage sites." Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. Watering Restrictions Mandatory watering restrictions are designed for short-term reductions in water use and would not

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		independently or reliably meet the required firm yield of 18,000 AF. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the Environmental Impact Statement. ***Form Letter Comment #1078-5*** *(ID 2787)**:*** *We are writing to you because as Mayor, "The buck stops with you." Please stop this project and the mindset that leads to policies and planning that bank on ever increasing water supply rather than on lowering demand. We request that you ask the Board of Water Commissioners to stop the Gross dam project, to go back to the drawing board, and to make water conservation the hallmark of Denver Water. Denver could be the water conservation capital of the country. In your campaign for governor this approach would serve you well all across the state, and as residents of Denver and Colorado, we would be so proud. And as angry residents of Coal Creek Canyon and Gross Dam communities we would be so relieved.* **Response #1078-5:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to the National Environmental Policy Act of 1969, as amended.

References

United States Army Corps of Engineers (Corps). 2007. Alternatives Screening Report, Moffat Collection System Project. U.S. Army Corps of Engineers Omaha District. August.

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Colorado Resident Form Letters

Comment-Response Report (Colorado Resident Form Letters)

Comment Information	Comment	Comments and Responses
COLORADO RESIDENT FORM LETTER — STANDARD		
[The Colorado Resident Standard Form Letter shown here on pages 1 and 2 was submitted by all the commenters listed below.] Comment #1122 Stephen M. Chesterton Comment #1123 illegible illegible Comment #1124 Laura Pratt Comment #1125 Brent Owen Comment #1126 Courtney Krause Comment #1127 Thom Ward Comment #1128 Beth Baldwin Comment #1129 Lauren Hasselbacher Comment #1130 Zachary Brown Comment #1131 Abby Kirkbride Comment #1132 Melissa Fowler	Scott Franklin Moffat EIS Project Manager Army Corps of Engineers, Omaha District Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 Dear Mr. Franklin: As a Colorado resident, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that will alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; Provide adequate mitigation requirements as conditions of any approved permit; Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use. It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado	***Form Letter Comment #1083-5*** *(ID 2806)**:*** *I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to:* **Response #1083-5:** Prior to making decisions on the proposed Project, the U.S. Army Corps of Engineers (Corps) will evaluate and consider the Moffat Collection System Project's (Moffat Project's or Project's) environmental effects according to the National Environmental Policy Act of 1969, as amended (NEPA). ***Form Letter Comment #1083-7*** *(ID 4432)**:*** *Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin;* **Response #1083-7:** Additional water quality analysis has been performed for the Fraser River and the Colorado River. Please refer to the Final Environmental Impact Statement (FEIS) Sections 4.6.2 and 5.2. ***Form Letter Comment #1083-3*** *(ID 4433)**:*** *Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit;* **Response #1083-3:** High spring flows would still occur with the Moffat

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Comment Information	Comment	Comments and Responses
Comment #1133 Scott Weaver Comment #1134 Nick West Comment #1135 Justin Plaskov Comment #1136 Naree Chan Comment #1137 Elise Aiken Comment #1138 Aubrey Coffey-Urban Comment #1139 James Barry Comment #1140 Beale Tejada Comment #1141 illegible illegible Comment #1142 Ashley Shannon Comment #1143 Jeffrey Bomen Comment #1144 Joseph Cabell Hodge Comment #1145 Shannon Fritts-Penniman	Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meets its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely,	Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cubic feet per second (cfs) versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7 percent (%). At the Fraser River below the confluence with Crooked Creek, which is downstream of all of the Board of Water Commissioner's (Denver Water's) diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several

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Comment Information	Comment	Comments and Responses
Comment #1146 Jamesy Owen Comment #1147 Sean Dormer Comment #1148 Angela Banducci Comment #1149 David Kaufman Comment #1167 Jerilyn Bensard Comment #1169 Denis D. Bensard Comment #1176 Daniel Fablet Comment #1189 Mike Stefanski		locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the U.S. Forest Service. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the Draft Environmental Impact Statement (DEIS) and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11.

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		An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the preferred alternative. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Form Letter Comment #1083-4*** *(ID 2805)**:*** *Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that will alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility;* **Response #1083-4:** The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River Basin and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the Platte and Colorado Simulation Model (PACSM) to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past

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		actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows in the Fraser and Williams Fork river basins diverted by Denver Water. This would allow the reader to compare the percentage of natural flows with past diversions at each of Denver Water's diversion locations modeled in PACSM under Current Conditions, Full Use of the Existing System, and for each of the Moffat Project alternatives. The existing conditions descriptions of flow and aquatic organisms in diverted tributary streams has been revised and expanded in FEIS Section 3.11. The DEIS and the FEIS both discuss flow changes and diversions with the Project in the Fraser River and the potential impacts to fish habitat and fish populations. Results in the EIS do not indicate that there would be a collapse of the Fraser River as a fishery. Mitigation for any predicted impacts that could occur in the Fraser River is included in FEIS Section 5.11.7 and Appendix M. ***Form Letter Comment #1083-2*** *(ID 2804)**:*** *Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions;* **Response #1083-2:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of

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		Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Project alternatives in combination with other reasonably foreseeable future actions based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 acre/feet per year (AF/yr). • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other reasonably foreseeable future actions. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of the Existing System includes reasonably foreseeable future actions including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032).

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		Form Letter Comment #1083-8 *(ID 2803)**:*** *Provide adequate mitigation requirements as conditions of any approved permit;* **Response #1083-8:** Please see the response to Comment ID 2801. ***Form Letter Comment #1083-6*** *(ID 2802)**:*** *Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use.* **Response #1083-6:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Denver Water has an aggressive 10-year conservation

Comment Information	Comment	Comments and Responses
		goal. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. ***Form Letter Comment #1083-9*** *(ID 2801)**:*** *It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem.* **Response #1083-9:** Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Form Letter Comment #1083-1*** *(ID 4430)**:*** *I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meets its municipal needs and ensure the continued existence of one of our most beloved rivers.* **Response #1083-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Colorado Resident Form Letters)

Comment Information	Comment	Comments and Responses
COLORADO RESIDENT FORM LETTERS — UNIQUE		
Comment #1163 Claire Bensard	RECEIVED MAR 2010 Scott Franklin Moffat EIS Project Manager Army Corps of Engineers, Omaha District Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 Dear Mr. Franklin, As a Colorado resident, I am writing to you because I am concerned about the potential impacts of the proposed Moffat Collection System Project on water quality, fisheries, and the overall health of the Upper Colorado River Basin. The Colorado River and its tributaries, such as the Fraser River, provide valuable habitat and recreational opportunities that are central to Colorado's economy and quality of life. The current DEIS (Draft Environmental Impact Statement), as written, fails to: - Adequately address potential impacts to water quality on the Fraser River and throughout the Colorado River Basin; - Include an analysis of the impacts that will result from diminished flushing and channel maintenance flows. If the project is to move forward, periodic peak flows that mimic those flows that normally result from spring runoff must be a condition of the permit; - Fully consider and recognize the cumulative impacts of the Moffat system's existing and proposed diversions and expansions that alter flow regimes throughout the Upper Colorado Basin. For example, in assessing the impacts of the proposed project, the DEIS does not consider the impacts existing projects are already having on the streams and their resources. Some of the streams affected, including the Fraser River, are already showing signs of deterioration. Will the additional diversions push the stream to a point where it can no longer sustain its fisheries? The DEIS does not ask the question, much less analyze or provide contingencies for that possibility; - Use data that provides an accurate baseline from which to measure real impacts rather than a "projected" baseline several years into the future that may not reflect real-world conditions; - Provide adequate mitigation requirements as conditions of any approved permit; - Ensure that Denver Water and its customers exhaust all measures to improve water conservation and efficient use of existing resources, including better integration of water deliveries throughout the area served by Denver water and an adequate program to reduce residential outdoor use.	***Unique Comment #1163-1*** *(ID 2652)**:*** *The Valley is a beautiful place in the summer, which allows this community to thrive due to summer tourism. Please consider the environment as well as the communities this affects.* **Response #1163-1:** The Corps notes the comment. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects, including socioeconomic effects, according to NEPA.

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	It is the responsibility of the US Army Corps of Engineers to ensure that effective mitigation is in place to protect the habitat, wildlife and local communities that rely on the Upper Colorado Basin streams. Increasing the amount of water diverted from Colorado's already depleted streams and rivers without improving efficiency is at best a temporary fix for a serious long-term problem. I urge you to work, in partnership with Denver Water and community stakeholders, to find a solution that will both allow the city to meet its municipal needs and ensure the continued existence of one of our most beloved rivers. Sincerely, Claire B Bensard Claire Bensard [redacted] P.S. The Valley is a beautiful place in the summer, which allows this community to thrive due to summer tourism. Please consider the environment as well as the communities this affects. Thank you.	

Crown Jewel Form Letters

Comment-Response Report (Crown Jewel Form Letters)

Comment Information	Comment	Comments and Responses
CROWN JEWEL FORM LETTER — STANDARD		
[The Crown Jewel Standard Form Letter shown here on page 1 was submitted by all the commenters listed below.] Comment #120 Tom Scrimgeour Comment #123 Linda Shaffer Comment #124 Pavla Pribylova Comment #129 Charlie Horn Comment #130 Amy Thoe Comment #131 Todd Hill Comment #133 Richard Sylvester Comment #135 Kristyn MacPhail Comment #137 Tom Jackson Comment #138 Jeff Thompson Comment #139 Rebecca English	I respectfully submit my comments on the Moffat Collection System Project DEIS and Section 404 Permit. This project proposes pumping more than 5.5 billion gallons of water annually from the headwaters of the Colorado River to serve Residents on the Front Range. This water will come out of the Fraser River, a river that has already seen significant dewatering. Without the proper environmental protections, this project could push the Fraser to the breaking point. Before this project is improved the project proponent, Denver Water, should provide further details on how their conservation efforts will fit into this larger proposal. The DEIS states that 18,000 Acre-Feet/Year (AF/Y) will come from the Moffat project, while an additional 16,000 AF/Y will be provided through increased conservation measures. The DEIS fails to provide an explanation of how that conservation will be realized, a comprehensive analysis of conservation plans must be included in the DEIS if this project moves forward. Denver Water has taken strong steps to encourage conservation among their customers; however there are many more strides to be made on this front. Moderate increases in outdoor conservation measures could provide additional savings as could expanded use of their Water Recycling Plant, rebates and other programs. At almost the exact same time that Denver Water is proposing their diversion project on the Fraser River, the Northern Water Conservancy District has plans to draw more water from the Upper Colorado River at Windy Gap. Denver Water's DEIS fails to acknowledge the impacts that these two projects (being proposed simultaneously) will have on the Upper Colorado River. The failure to recognize the impacts of this project in light of the extensive historic diversions already operating is a serious flaw to the DEIS. In addition to the impacts to flows, the cumulative impacts of this project to water quality in the Fraser, as well as to the Three Lake system should be addressed by the DEIS. Finally the DEIS fails to include an analysis of the impacts that will result from diminished flushing flows, if the project is to move forward periodic peak flows such as those which would naturally occur with spring runoff must be a condition of the permit. These flows are vital to the Fraser, without them it cannot flush the 9,000 tons of traction sand from road maintenance and other sediment downstream. This sedimentation is inundating vital habitat for aquatic species, peak flows can help remove this sediment, create new habitat and restore riparian ecosystems. The Upper Colorado River has long been a crown jewel among our most treasured resources, with it's close proximity to the Front Range it is a backyard playground for thousands of Coloradans. Fishing, hiking, hunting, rafting and so many other opportunities not only provide recreation opportunities for tourists, but vital dollars to the local communities. What impacts reduced flows will have on these opportunities and the local economies must be fully assessed and mitigated before this project moves forward. Please ensure that this project is done right.	***Form Letter Comment #574-3*** *(ID 941)**:*** *I respectfully submit my comments on the Moffat Collection System Project DEIS and Section 404 Permit. This project proposes pumping more than 5.5 billion gallons of water annually from the headwaters of the Colorado River to serve Residents on the Front Range. This water will come out of the Fraser River, a river that has already seen significant dewatering. Without the proper environmental protections, this project could push the Fraser to the breaking point.* **Response #574-3:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to the National Environmental Policy Act of 1969, as amended (NEPA). ***Form Letter Comment #574-0*** *(ID 942)**:*** *Before this project is improved the project proponent, Denver Water, should provide further details on how their conservation efforts will fit into this larger proposal. The DEIS states that 18,000 Acre-Feet/Year (AF/Y) will come from the Moffat project, while an additional 16,000 AF/Y will be provided through increased conservation measures. The DEIS fails to provide an explanation of how that conservation will be realized, a comprehensive analysis of conservation plans must be included in the DEIS if this project moves forward. Denver Water has taken strong steps to encourage conservation among their customers; however there are many more strides to be made on this front. Moderate increases in outdoor conservation measures could provide additional savings as could expanded use of their Water Recycling Plant, rebates and other programs.* **Response #574-0:** Conservation is part of the solution for water supply

Comment-Response Report (Crown Jewel Form Letters)

Comment Information	Comment	Comments and Responses
Comment #140 Shar Brodbelt Comment #141 Diane Curlette Comment #142 Karen Galloway Comment #143 Dr. Arnold L. Schultz, PhD Comment #144 Ross Douglas Comment #145 Dr. Martha W. Bushnell Comment #146 Paul Joyce Comment #147 Bill Dvorak Comment #148 Jayla Poppleton Comment #152 Laurie Hickenlooper Comment #370 Sarah DeNardo Comment #376 Dr. Bjoern Mannsfeld Comment #377 Mary Anne Gaskins		projects. The Purpose and Need of the Moffat Collection System Project (Moffat Project or Project) is to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in the Board of Water Commissioner's (Denver Water's) supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) Table 1-2. As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 acre-feet (AF) of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional

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Comment Information	Comment	Comments and Responses
Comment #391 Daniel Emrich Comment #392 Alberto Torres Comment #435 Emy Parmley Comment #446 Ted Diedrich Comment #478 Kit Coddington Comment #576 Bernard ONeil Comment #578 Michelle Zerbib Comment #593 Mrs. Roger Peirce Comment #597 Brent Unrau-Goring Comment #718 Lawrence Crowley Comment #728 Beverly Mabry		supply Denver Water would need to meet future demand. The U.S. Army Corps of Engineers (Corps) reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22 percent (%) by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. Conservation Incentives Denver Water implements an aggressive rebate program and rewards customers for installing low-flow fixtures and rain gages. In the last three years 38,627 residential rebates have been processed by Denver Water, which amounts to 15 percent of Denver Water's residential customers participating in rebate programs since 2007. Through these rebates, the new high-efficiency products help save about 960 AF of water, roughly the amount used by 2,400 homes in a year. Additionally, Denver Water has launched a pilot program with Habitat for Humanity by buying inefficient toilets (more than 1.6 gallons per flush) from their Home Improvement Outlet stores as an attempt to save over 40 AF/year. Denver Water also offers free water-use audits and incentive contracts to commercial, industrial, and institutional customers. Recycled Water All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's system supply and reduces the amount of water diverted from

Comment Information	Comment	Comments and Responses
		other components of the system. The main sources of reusable water in Denver Water's Collection System are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek system (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Littleton–Englewood Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,500 AF/yr. Refer to FEIS Section 1.3.1 (Subheading Non-Potable Recycling Facility). ***Form Letter Comment #574-2*** *(ID 943)**:*** *At almost the exact same time that Denver Water is proposing their diversion project on the Fraser River, the Northern Water Conservancy District has plans to draw more water from the Upper Colorado River at Windy Gap. Denver Water's DEIS fails to acknowledge the impacts that these two projects (being proposed simultaneously) will have on the Upper Colorado River. The failure to recognize the impacts of this project in light of the extensive historic diversions already operating is a serious flaw to the DEIS. In addition to the impacts to flows, the cumulative impacts of this project to water quality in the Fraser, as well as to the Three Lake system should be addressed by the DEIS.*

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		Response #574-2: The DEIS includes the Windy Gap Firming Project (WGFP) as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the Colorado-Big Thompson (C-BT) Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Form Letter Comment #574-1*** *(ID 944)**:*** *Finally the DEIS fails to include an analysis of the impacts that will result from diminished flushing flows, if the project is to move forward periodic peak flows such as those which would naturally occur with spring runoff must be a condition of the permit. These flows are vital to the Fraser, without them it cannot flush the 9,000 tons of traction sand from road maintenance and other sediment downstream. This sedimentation is inundating vital habitat for aquatic species, peak flows can help remove this sediment, create new habitat and restore riparian ecosystems.*

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		Response #574-1: High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cubic feet per second (cfs) versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to

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		FEIS Sections 4.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the U.S. Forest Service. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was

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		evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. ***Form Letter Comment #574-0*** *(ID 945)**:*** *The Upper Colorado River has long been a crown jewel among our most treasured resources, with its close proximity to the Front Range it is a backyard playground for thousands of Coloradans. Fishing, hiking, hunting, rafting and so many other opportunities not only provide recreation opportunities for tourists, but vital dollars to the local communities. What impacts reduced flows will have on these opportunities and the local economies must be fully assessed and mitigated before this project moves forward. Please ensure that this project is done right.* **Response #574-0:** The West Slope agricultural and recreational economies are further addressed in FEIS Section 5.19. Denver Water's Conceptual Mitigation Plan is contained in FEIS Appendix M.

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CROWN JEWEL FORM LETTERS — UNIQUE		
Comment #136 Kim Hedberg	From: Site Administrator [mailto: [redacted] On Behalf Of Kim HEDBERG Sent: Friday, February 05, 2010 2:06 PM To: MOFFAT.EIS@usace.army.mil Subject: RE: Moffat Collection System Project (Permit Application NOW-200) Feb 5, 2010 Scott Franklin 9307 S. Wadsworth Blvd Littleton, CO 80128 Dear Franklin, Hi, and thanks for reading my comments. I'm concerned about the environmental impacts of pumping more water out of the Fraser River and would like to know more about what precautions are being taken to ensure that natural flows are maintained to support fragile aquatic systems. Since there are two proposals that affect the Colorado River Watershed, impacts from both should be considered while examining the Moffat Project. Specifics follow. This project proposes pumping more than 5.5 billion gallons of water annually from the headwaters of the Colorado River to serve Residents on the Front Range. This water will come out of the Fraser River, a river that has already seen significant dewatering. Without the proper environmental protections, this project could push the Fraser to the breaking point. Before this project is improved the project proponent, Denver Water, should provide further details on how their conservation efforts will fit into this larger proposal. The DEIS states that 18,000 Acre-Feet/Year (AF/Y) will come from the Moffat project, while an additional 16,000 AF/Y will be provided through increased conservation measures. The DEIS fails to provide an explanation of how that conservation will be realized, a comprehensive analysis of conservation plans must be included in the DEIS if this project moves forward. Denver Water has taken strong steps to encourage conservation among their customers; however there are many more strides to be made on this front. Moderate increases in outdoor conservation measures could provide additional savings as could expanded use of their Water Recycling Plant, rebates and other programs. At almost the exact same time that Denver Water is proposing their diversion project on the Fraser River, the Northern Water Conservancy District has plans to draw more water from the Upper Colorado River at Windy Gap. Denver Water's DEIS fails to acknowledge the impacts that these two projects (being proposed simultaneously) will have on the Upper Colorado River. The failure to recognize the impacts of this project in light of the extensive historic diversions already operating is a serious flaw to the DEIS. In addition to the impacts to flows, the cumulative impacts of this project to water quality in the Fraser, as well as to the Three Lake system should be addressed by the DEIS. Finally the DEIS fails to include an analysis of the impacts that will result from diminished flushing flows, if the project is to move forward periodic peak flows such as those which would naturally occur with spring runoff must be a condition of the permit. These flows are vital to the Fraser, without them it cannot flush the 9,000 tons of traction sand from road maintenance and other sediment downstream. This sedimentation is inundating vital habitat for aquatic species, peak flows can help remove this sediment, create new habitat and restore riparian ecosystems. The Upper Colorado River has long been a crown jewel among our most treasured resources, with it's close proximity to the Front Range it is a backyard playground for thousands of Coloradans. Fishing, hiking, hunting, rafting and so many other opportunities not only provide recreation opportunities for tourists, but vital dollars to the local communities. What impacts reduced flows will have on these opportunities and the local economies must be fully assessed and mitigated before this project moves	***Unique Comment #136-1*** *(ID 2676)**:*** *I'm concerned about the environmental impacts of pumping more water out of the Fraser River and would like to know more about what precautions are being taken to ensure that natural flows are maintained to support fragile aquatic systems. Since there are two proposals that affect the Colorado River Watershed, impacts from both should be considered while examining the Moffat Project.* **Response #136-1:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. The Council on Environmental Quality interprets

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	forward. Please ensure that this project is done right. Sincerely, Ms. Kim HEDBERG [redacted]	NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the Platte and Colorado Simulation Model (PACSM) to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past

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		diversions at each of Denver Water's diversions locations modeled in PACSM. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit.

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Federal

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Comment #464 -- -- Fish and Wildlife Service	FWS Position Paper on Lineage GB populations outside the historic range of the Greenback Cutthroat Trout **Background** The greenback cutthroat trout (*Onchorhynchus clarki stomias*) was listed as an endangered species in 1967, under a precursor to the Endangered Species Act (Act). It was re-listed as endangered under the current Act in 1974, and downlisted to threatened status, with a 4(d) rule allowing catch and release fishing, in 1978. Greenbacks are considered native to the headwaters of the South Platte and Arkansas River drainages in eastern Colorado, and a few headwater tributaries of the South Platte in a small area of southeastern Wyoming (Behnke 1992). Another cutthroat trout subspecies, the Colorado River cutthroat trout (*Onchorhynchus clarki pleuriticus*), occurs in the Colorado and Green River drainages in the west slope of Colorado, southwestern Wyoming, and eastern Utah. Genetics and Taxonomic Issues Since 2006, a number of genetic studies have been undertaken to try to determine the genetic relationships between greenback, Colorado River, and Rio Grande cutthroat trout (*Onchorhynchus clarki virginalis*) (Mitton et al. 2006, Metcalf et al. 2007, Metcalf 2007, Rogers 2008). Mitton et al. (2006) found all 3 subspecies to be closely related, and did not believe that any of them warranted subspecific designation. Metcalf et al. (2007) used molecular markers from the mitochondrial and nuclear genomes to analyze individuals from greenback and Colorado River cutthroat trout. Their studies revealed two divergent lineages within the ranges of greenback and Colorado River cutthroat trout consisting of 10 unique haplotypes, which they determined corresponded with the two described subspecies. These lineages are known as GB (greenback) and CR (Colorado River). Subsequent sampling and analysis found that of 45 assumed Colorado River cutthroat populations, 12 were assigned to lineage GB. In addition, of 12 assumed greenback populations present on the east side of the Continental Divide, 11 were assigned to the CR lineage (Rogers 2008). Since publication of Rogers (2008), additional sampling has identified additional lineage GB populations on the west slope of Colorado and in eastern Utah (Rosenlund 2009 pers. com). The current Rio Grande lineage populations seem to fit well within the Rio Grande drainage. To determine whether any taxonomic revisions to greenback or Colorado River cutthroat trout should be proposed, the Greenback Recovery Team is working on two research projects: (1) Attempting to see if the lineage markers can be found in the few cutthroat trout samples collected in the 1800's, and currently stored in museums, and (2) Attempting to determine if there is a physical difference between the three DNA lineages (greenback, Colorado River, and Rio Grande) through morphology and meristics analyses. Results of these projects are not expected for at least two years (Rosenlund 2009 pers. com.).	***Comment #464-2*** *(ID 16)**:*** *Background The greenback cutthroat trout (Onchorhynchus clarki stomias) was listed as an endangered species in 1967, under a precursor to the Endangered Species Act (Act). It was re-listed as endangered under the current Act in 1974, and downlisted to threatened status, with a 4(d) rule allowing catch and release fishing, in 1978. Greenbacks are considered native to the headwaters of the South Platte and Arkansas River drainages in eastern Colorado, and a few headwater tributaries of the South Platte in a small area of southeastern Wyoming (Behnke 1992). Another cutthroat trout subspecies, the Colorado River cutthroat trout (Onchorhynchus clarki pleuriticus), occurs in the Colorado and Green River drainages in the west slope of Colorado, southwestern Wyoming, and eastern Utah. Genetics and Taxonomic Issues Since 2006, a number of genetic studies have been undertaken to try to determine the genetic relationships between greenback, Colorado River, and Rio Grande cutthroat trout (Onchorhynchus clarki virginalis) (Mitton et al. 2006, Metcalf et al. 2007, Metcalf 2007, Rogers 2008). Mitton et al. (2006) found all 3 subspecies to be closely related, and did not believe that any of them warranted subspecific designation. Metcalf et al. (2007) used molecular markers from the mitochondrial and nuclear genomes to analyze individuals from greenback and Colorado River cutthroat trout. Their studies revealed two divergent lineages within the ranges of greenback and Colorado River cutthroat trout consisting of 10 unique haplotypes, which they determined corresponded with the two described subspecies. These lineages are known as GB (greenback) and CR (Colorado River). Subsequent sampling and analysis found that of 45 assumed Colorado River cutthroat populations, 12 were assigned to lineage GB. In addition, of 12 assumed*

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	At this time, it is not known if the current distribution of the GB and CR lineages is: (1) natural, (2) the result of moving fish across river drainages (i.e. stocking), (3) or as the physical characteristics suggests, the GB and CR lineages are just part of a group of fish that have not been separated long enough to form separate physical characteristics (Rosenlund 2009 pers. com.). The results from the analysis of historical samples and the morphology and meristics analyses should help to resolve this issue. **Section 7 Issue** The identification of lineage GB fish in western Colorado and eastern Utah has raised concerns regarding whether there is a need for application of the Act (particularly section 7 consultation) in these areas. Although the greenback was listed rangewide, its distribution was designated only as Colorado. Thus any greenback lineage fish found in Utah or Wyoming would not currently receive any protections under the Act. However, a question remains as to whether or not cutthroat populations containing lineage GB fish in western Colorado should receive the protections of the Act. In an e-mail provided to the U.S. Forest Service (USFS) (Linner 2007), the Service stated that we are in an interim period where there are a lot of uncertainties. During this period, we believe that management agencies should be cautious with fishery-related activities until a thorough review of the new research findings can occur. In regard to consultation requirements under the Act, we therefore find it appropriate during this interim period to use the best scientific information available to determine if a USFS action may affect greenback cutthroat trout (GBCT), including GBCT that may occur outside its historic range in western Colorado. The USFS should determine the effects of any actions they fund or authorize where GBCT are present. If an action may affect GBCT, including those found on the west slope, initiation of consultation is appropriate. Although this e-mail was specific to USFS actions, the Service believes that all federal agencies should review their activities in a similar manner. **Colorado River Cutthroat Trout Conservation** The Colorado River cutthroat trout (CRCT) Conservation Team updated the Conservation Strategy and Agreement in March 2006. Signatories to the Agreement include the State wildlife agencies of Colorado, Utah, and Wyoming; the USFS, the Bureau of Land Management (BLM), and the Service (CRCT Conservation Team 2006). The purpose of the strategy is to provide a framework for the long-term conservation of the Colorado River cutthroat, and to reduce or eliminate the threats that warrant its status as a sensitive species or species of concern by federal and state resource agencies. The objectives of the strategy are to identify and characterize all CRCT core and conservation populations, secure and enhance conservation populations, restore populations, secure and enhance watershed conditions, public outreach, data sharing, and coordination. The three States, USFS, BLM, and the Service have committed to implement the strategy. The Service believes that implementation of the CRCT strategy to conserve and protect Colorado River cutthroat trout populations throughout their range will also adequately 2	*greenback populations present on the east side of the Continental Divide, 11 were assigned to the CR lineage (Rogers 2008). Since publication of Rogers (2008), additional sampling has identified additional lineage GB populations on the west slope of Colorado and in eastern Utah (Rosenlund 2009 pers. com). The current Rio Grande lineage populations seem to fit well within the Rio Grande drainage. To determine whether any taxonomic revisions to greenback or Colorado River cutthroat trout should be proposed, the Greenback Recovery Team is working on two research projects: (1) Attempting to see if the lineage markers can be found in the few cutthroat trout samples collected in the 1800's, and currently stored in museums, and (2) Attempting to determine if there is a physical difference between the three DNA lineages (greenback, Colorado River, and Rio Grande) through morphology and meristics analyses. Results of these projects are not expected for at least two years (Rosenlund 2009 pers. com.). At this time, it is not known if the current distribution of the GB and CR lineages is: (1) natural, (2) the result of moving fish across river drainages (i.e. stocking), (3) or as the physical characteristics suggests, the GB and CR lineages are just part of a group of fish that have not been separated long enough to form separate physical characteristics (Rosenlund 2009 pers. com.). The results from the analysis of historical samples and the morphology and meristics analyses should help to resolve this issue.*

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	protect any lineage GB populations. Therefore, agencies should include these activities in their Biological Evaluations/Assessments (BE/BAs) as conservation measures for lineage GB populations. **Process** To ensure an adequate Administrative Record for all agency actions that could be subject to section 7 consultation, it will be important for federal agencies to document the presence of lineage GB populations and the protective measures being incorporated for those populations, and to evaluate the effects of their actions on the populations in their BE or BA. The Service will issue concurrence letters, or initiate formal consultation if there are adverse effects that cannot be avoided. We would be happy to discuss specific projects with agency personnel during the development of a BE or BA. The Service's contact will be Patty Gelatt in Grand Junction (970-243-2778 x 26). **Literature Cited** Behnke, R.J. 1992. Greenback cutthroat trout. pp. 146-148 *in* Native trout of western North America. American Fisheries Society Monograph 6, Bethesda, Maryland. 275 pp. CRCT Coordination Team. 2006. Conservation Strategy for Colorado River cutthroat trout (*Onchorhynchus clarki pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24 pp. Linner, S.C. 2007. E-mail from Susan Linner, Colorado Field Supervisor, Fish and Wildlife Service to Dave Winters, Regional Fishery Biologist, Forest Service, July 20, 2007. Metcalf, J.L. 2007. Estimates of introgression for Columbine Creek, Rocky Mountain Park from microsatellite, aflp, and mitochondrial dna data. 12 pp. Metcalf, J.L, V. Pritchard, S. Silvestri, J. Jenkins, J. Wood, D. Cowley, R. Evans, D. Shiozawa, A. Martin. 2007. Across the great divide: genetic forensics reveals misidentification of endangered cutthroat trout populations. Molecular Ecology (2007). 10 pp. Mitton, J.B., J.L. Metcalf, A. Martin, B.R. Kreiser, K.L Durand, and J. Woodling. 2006. MtDNA phylogeny of the subspecies of Cutthroat Trout, *Oncorhynchus clarki*. Unpublished report. 16 pp. Rogers, K.B. 2008. Using amplified fragment length polymorphisms to characterize purity of cutthroat trout in Colorado: results from 2007. 74 pp. Rosenlund, B.D. 2009. E-mail to Ann Carlson and Paul Abate, February 4, 2009. 3	**Response #464-2:** A summary of the information described in the comment has been added to the discussion of greenback (GB) cutthroat trout and Colorado River cutthroat trout in the Final Environmental Impact Statement (FEIS) Sections 3.10 and 3.11. Additional fish data collection was conducted by the U.S. Army Corps of Engineers (Corps) in the fall of 2010 in tributary streams to the Fraser River; cutthroat trout were not observed or collected in these samples. ***Comment #464-3*** *(ID 17)**:*** *Section 7 Issue The identification of lineage GB fish in western Colorado and eastern Utah has raised concerns regarding whether there is a need for application of the Act (particularly section 7 consultation) in these areas. Although the greenback was listed rangewide, its distribution was designated only as Colorado. Thus any greenback lineage fish found in Utah or Wyoming would not currently receive any protections under the Act. However, a question remains as to whether or not cutthroat populations containing lineage GB fish in western Colorado should receive the protections of the Act. In an e-mail provided to the U.S. Forest Service (USFS) (Linner 2007), the Service stated that we are in an interim period where there are a lot of uncertainties. During this period, we believe that management agencies should be cautious with fishery-related activities until a thorough review of the new research findings can occur. In regard to consultation requirements under the Act, we therefore find it appropriate during this interim period to use the best scientific information available to determine if a USFS action may affect greenback cutthroat trout (GBCT), including GBCT that may occur outside its historic range in western Colorado.*

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		The USFS should determine the effects of any actions they fund or authorize where GBCT are present. If an action may affect GBCT, including those found on the west slope, initiation of consultation is appropriate. Although this e-mail was specific to USFS actions, the Service believes that all federal agencies should review their activities in a similar manner. **Response #464-3:** Please see the response to Comment Identification (ID) 19. ***Comment #464-4*** *(ID 18)**:*** *Colorado River Cutthroat Trout Conservation The Colorado River cutthroat trout (CRCT) Conservation Team updated the Conservation Strategy and Agreement in March 2006. Signatories to the Agreement include the State wildlife agencies of Colorado, Utah, and Wyoming; the USFS, the Bureau of Land Management (BLM), and the Service (CRCT Conservation Team 2006). The purpose of the strategy is to provide a framework for the long-term conservation of the Colorado River cutthroat, and to reduce or eliminate the threats that warrant its status as a sensitive species or species of concern by federal and state resource agencies. The objectives of the strategy are to identify and characterize all CRCT core and conservation populations, secure and enhance conservation populations, restore populations, secure and enhance watershed conditions, public outreach, data sharing, and coordination. The three States, USFS, BLM, and the Service have committed to implement the strategy. The Service believes that implementation of the CRCT strategy to conserve and protect Colorado River cutthroat trout populations throughout their range will also adequately protect any lineage GB populations. Therefore, agencies should include these activities*

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		in their Biological Evaluations/Assessments (BE/BAs) as conservation measures for lineage GB populations. **Response #464-4:** The Corps will consider conservation measures described in the Conservation Strategy Agreement. ***Comment #464-1*** *(ID 19)**:*** *Process To ensure an adequate Administrative Record for all agency actions that could be subject to section 7 consultation, it will be important for federal agencies to document the presence of lineage GB populations and the protective measures being incorporated for those populations, and to evaluate the effects of their actions on the populations in their BE or BA. The Service will issue concurrence letters, or initiate formal consultation if there are adverse effects that cannot be avoided. We would be happy to discuss specific projects with agency personnel during the development of a BE or BA.* **Response #464-1:** A Supplemental Biological Assessment (BA) is being been prepared by the Corps and will be submitted to the U.S. Fish and Wildlife Service (USFWS) (FEIS Appendix G). A summary of the information on the lineage of GB cutthroat trout populations has been added to FEIS Sections 3.10 and 3.11.

Comment Information	Comment	Comments and Responses
Comment #500 Robert F. Stewart, Regional Environmental Officer United States Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance Denver Federal Center, Building 67, Room 118, P.O. Box 25007 (D-108) Denver, CO 80225-0007	United States Department of the Interior OFFICE OF THE SECRETARY Office of Environmental Policy and Compliance Denver Federal Center, Building 67, Room 118 Post Office Box 25007 (D-108) Denver, Colorado 80225-0007 TAKE PRIDE IN AMERICA February 16. 2010 9043.1 ER 09/1127 Scott Franklin, Moffat EIS Project Manager U.S. Army Corps of Engineers, Omaha District Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 Dear Mr. Franklin The Department of the Interior has reviewed the **Moffat Collection System Project Draft Environmental Impact Statement**, CO and offers the following comments. The U.S. Fish and Wildlife Service (USFWS) has previously reviewed aspects of this project and discussed it in meetings with Denver Water, the project proponent, and the U.S. Army Corps of Engineers (COE). On July 31, 2009, at the request of COE, they completed a Biological Opinion for the COE, Clean Water Act section 404 permit application portion of the project (there is also a FERC component to the project). USFWS Colorado Field Office staff met on February 2, 2010, with Denver Water, consultants for Denver Water, and the Colorado Division of Wildlife to discuss requirements for the Fish & Wildlife Coordination Act Report. That report is not included in the Draft EIS. The main area of concern discussed was project impacts to greenback cutthroat trout, especially in Little Vasquez, Bobtail, and Steelman Creeks. General Comments **Greenback Cutthroat Trout** The greenback cutthroat trout (*Onchorhynchus clarki stomias*) was listed as an endangered species in 1967, under a precursor to the Endangered Species Act (Act). It was re-listed as endangered under the current Act in 1974, and downlisted to threatened status, with a 4(d) rule allowing catch and release fishing, in 1978. Greenbacks are considered native to the headwaters of the South Platte and Arkansas River drainages in eastern Colorado, and a few headwater tributaries of the South Platte in a small area of southeastern Wyoming (Behnke 1992). Another cutthroat trout subspecies, the Colorado River cutthroat trout (*Onchorhynchus clarki pleuriticus*), occurs in the Colorado and Green River drainages in the west slope of Colorado, southwestern Wyoming, and eastern Utah.	***Comment #500-5*** *(ID 39)**:*** *The U.S. Fish and Wildlife Service (USFWS) has previously reviewed aspects of this project and discussed it in meetings with Denver Water, the project proponent, and the U.S. Army Corps of Engineers (COE). On July 31, 2009, at the request of COE, they completed a Biological Opinion for the COE, Clean Water Act section 404 permit application portion of the project (there is also a FERC component to the project). USFWS Colorado Field Office staff met on February 2, 2010, with Denver Water, consultants for Denver Water, and the Colorado Division of Wildlife to discuss requirements for the Fish & Wildlife Coordination Act Report. That report is not included in the Draft EIS. The main area of concern discussed was project impacts to greenback cutthroat trout, especially in Little Vasquez, Bobtail, and Steelman Creeks.* **Response #500-5:** The Corps coordinated with the USFWS and Colorado Parks and Wildlife (CPW) (formerly Colorado Division of Wildlife [CDOW]) regarding the Fish and Wildlife Coordination Act and State law 37-60-122.2., including participation in State Wildlife Commission Workshops regarding Moffat Collection System Project (Moffat Project or Project) effects on wildlife and recommended mitigation measures. This information will be summarized in the Fish and Wildlife Coordination Act Report required as part of a Section 404 Permit. ***Comment #500-7*** *(ID 40)**:*** *Greenback Cutthroat Trout The greenback cutthroat trout (Onchorhynchus clarki stomias) was listed as an endangered species in 1967, under a precursor to the Endangered Species Act (Act). It was re-listed as endangered under the current Act in 1974, and downlisted to threatened status, with a 4(d) rule allowing catch and release fishing, in 1978.*

Comment-Response Report (Federal)

Comment Information	Comment	Comments and Responses
	Scott Franklin 2 Since 2006, a number of genetic studies have been undertaken to try to determine the genetic relationships between greenback, Colorado River, and Rio Grande cutthroat trout (*Onchorhynchus clarki virginalis*) (Mitton et al. 2006, Metcalf et al. 2007, Metcalf 2007, Rogers 2008). Mitton et al. (2006) found all 3 subspecies to be closely related, and did not believe that any of them warranted subspecific designation. Metcalf et al. (2007) used molecular markers from the mitochondrial and nuclear genomes to analyze individuals from greenback and Colorado River cutthroat trout. Their studies revealed two divergent lineages within the ranges of greenback and Colorado River cutthroat trout consisting of 10 unique haplotypes, which they determined corresponded with the two described subspecies. These lineages are known as GB (greenback) and CR (Colorado River). Subsequent sampling and analysis found that of 45 assumed Colorado River cutthroat populations, 12 were assigned to lineage GB. In addition, of 12 assumed greenback populations present on the east side of the Continental Divide, 11 were assigned to the CR lineage (Rogers 2008). Since publication of Rogers (2008), additional sampling has identified additional lineage GB populations on the west slope of Colorado and in eastern Utah (Rosenlund 2009 pers. com). The current Rio Grande lineage populations seem to fit well within the Rio Grande drainage. The identification of lineage GB fish in western Colorado and eastern Utah has raised concerns whether there is a need for application of the Act (particularly section 7 consultation) in these areas. Although the greenback was listed rangewide, its distribution was designated only as Colorado. Thus any GB lineage fish found in Utah or Wyoming would not currently receive any protections under the Act. The USFWS finds that they are in an interim period where there are a lot of uncertainties. During this period, they recommend that management agencies be cautious with fishery-related activities until a thorough review of the new research findings can occur. In regard to consultation requirements under the Act, they find it appropriate during this interim period to use the best scientific information available to determine if actions may affect greenback cutthroat trout (GBCT), including GBCT that may occur outside its historic range in western Colorado. The COE should determine the effects of any actions they fund or authorize where GBCT are present. If an action may affect GBCT, including those found on the west slope, initiation of consultation is appropriate. Cutthroat trout populations that have been identified as GB lineage do occur in the Project area. Trout populations in segments of Steelman Creek, Bobtail Creek, and Little Vasquez Creek have been identified as GB lineage. Therefore, the USFWS recommends that the COE reinitiate section 7 consultation for the project and amend the biological assessment (BA) to address the GB lineage populations within the Project area. **Colorado River Cutthroat Trout** A Conservation Agreement and Strategy (CRCT Coordination Team 2006) has been initiated by the wildlife agencies in Colorado, Utah and Wyoming to reduce threats to Colorado River cutthroat trout (CRCT), to stabilize or enhance its populations, and to maintain its ecosystems. The Forest Service, the Colorado Division of Wildlife and the USFWS are all signatories to the Agreement. In order for the threats to CRCT to be	*Greenbacks are considered native to the headwaters of the South Platte and Arkansas River drainages in eastern Colorado, and a few headwater tributaries of the South Platte in a small area of southeastern Wyoming (Behnke 1992). Another cutthroat trout subspecies, the Colorado River cutthroat trout (Onchorhynchus clarki pleuriticus), occurs in the Colorado and Green River drainages in the west slope of Colorado, southwestern Wyoming, and eastern Utah. Since 2006, a number of genetic studies have been undertaken to try to determine the genetic relationships between greenback, Colorado River, and Rio Grande cutthroat trout (Onchorhynchus clarki virginalis) (Mitton et al. 2006, Metcalf et al. 2007, Metcalf 2007, Rogers 2008). Mitton et al. (2006) found all 3 subspecies to be closely related, and did not believe that any of them warranted subspecific designation. Metcalf et al. (2007) used molecular markers from the mitochondrial and nuclear genomes to analyze individuals from greenback and Colorado River cutthroat trout. Their studies revealed two divergent lineages within the ranges of greenback and Colorado River cutthroat trout consisting of 10 unique haplotypes, which they determined corresponded with the two described subspecies. These lineages are known as GB (greenback) and CR (Colorado River). Subsequent sampling and analysis found that of 45 assumed Colorado River cutthroat populations, 12 were assigned to lineage GB. In addition, of 12 assumed greenback populations present on the east side of the Continental Divide, 11 were assigned to the CR lineage (Rogers 2008). Since publication of Rogers (2008), additional sampling has identified additional lineage GB populations on the west slope of Colorado and in eastern Utah (Rosenlund 2009 pers. com). The current Rio Grande lineage populations seem to fit well within the Rio Grande drainage. The identification of lineage GB fish in*

Comment Information	Comment	Comments and Responses
	Scott Franklin 3 evaluated, all conservation populations and core conservation populations of Colorado River cutthroat trout should be specifically identified in the Affected Environment Chapter and the Environmental Consequences Chapter of the EIS. Detailed Comments Chapter 3 – Affected Environment Page 3-196 - 197: Special Status Species, Gross Reservoir – Information on Greenback cutthroat trout should be updated to include information on GB lineage populations west of the continental divide within the project area. This section states: "this species was petitioned for listing as threatened, but a 12-month finding by the USFWS in 2007 determined that listing was not warranted at that time (USFWS 2007)." This statement is incorrect for greenback cutthroat trout, it is referring to CRCT. Page 3-203-204: Special Status Species – Information on Colorado River cutthroat trout (CRCT) should be updated. Populations in Little Vazquez Creek, Steelman Creek, and Bobtail Creek have been identified as GB lineage populations. Page 3-212: Information should be updated to include GB lineage populations on the west slope within the project area. Page 3-225: States "seven tributary streams with diversions have no sampling data and are not discussed below". However, Iron Creek has a core conservation population of CRCT, so there must be some sampling data. Table 3.9-6 shows that Little Vasquez Creek was last sampled in 1966. Since it has been identified as a GB lineage population, there must be more recent sampling data. Page 3-231: Information for CRCT populations should be taken from Hirsch et al. 2006 instead of Young et al. 1996. Page 3-237-238: Sections on Steelman Creek and Bobtail Creek should discuss the GB lineage populations. Chapter 4 – Environmental Consequences Page 4-291: Information on GBCT should be updated to include a discussion of the GB lineage populations on the west slope. Page 4-295: CRCT trout and GB lineage populations occur above the diversions; however, the COE should disclose how the diversions affect these trout populations and individual fish. A description of each diversion structure should be provided. An analysis of each diversion structure should include the likelihood of fish entrainment and whether the structure blocks upstream fish movement. We recognize that fish barriers protect cutthroat trout populations from invasion of nonnative species.	*western Colorado and eastern Utah has raised concerns whether there is a need for application of the Act (particularly section 7 consultation) in these areas. Although the greenback was listed rangewide, its distribution was designated only as Colorado. Thus any GB lineage fish found in Utah or Wyoming would not currently receive any protections under the Act. The USFWS finds that they are in an interim period where there are a lot of uncertainties. During this period, they recommend that management agencies be cautious with fishery-related activities until a thorough review of the new research findings can occur. In regard to consultation requirements under the Act, they find it appropriate during this interim period to use the best scientific information available to determine if actions may affect greenback cutthroat trout (GBCT), including GBCT that may occur outside its historic range in western Colorado. The COE should determine the effects of any actions they fund or authorize where GBCT are present. If an action may affect GBCT, including those found on the west slope, initiation of consultation is appropriate. Cutthroat trout populations that have been identified as GB lineage do occur in the Project area. Trout populations in segments of Steelman Creek, Bobtail Creek, and Little Vasquez Creek have been identified as GB lineage. Therefore, the USFWS recommends that the COE reinitiate section 7 consultation for the project and amend the biological assessment (BA) to address the GB lineage populations within the Project area.* **Response #500-7:** A summary of the information on the lineage of GB cutthroat trout populations has been added to the FEIS Sections 3.10 and 3.11.

Comment Information	Comment	Comments and Responses
	Scott Franklin 4 If you have questions regarding these comments, please contact Ms. Susan Linner, the USFWS Colorado Field Supervisor in Cheyenne at (303) 236-4774, extension 236. Sincerely, Robert F. Stewart Regional Environmental Officer **Literature Cited** Behnke, R.J. 1992. Greenback cutthroat trout. pp. 146-148 *in* Native trout of western North America. American Fisheries Society Monograph 6, Bethesda, Maryland. 275 pp. CRCT Coordination Team. 2006. Conservation Strategy for Colorado River cutthroat trout (*Onchorhynchus clarki pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24 pp. Metcalf, J.L. 2007. Estimates of introgression for Columbine Creek, Rocky Mountain Park from microsatellite, aflp, and mitochondrial dna data. 12 pp. Metcalf, J.L, V. Pritchard, S. Silvestri, J. Jenkins, J. Wood, D. Cowley, R. Evans, D. Shiozawa, A. Martin. 2007. Across the great divide: genetic forensics reveals misidentification of endangered cutthroat trout populations. Molecular Ecology (2007). 10 pp. Mitton, J.B., J.L. Metcalf, A. Martin, B.R. Kreiser, K.L Durand, and J. Woodling. 2006. MtDNA phylogeny of the subspecies of Cutthroat Trout, *Oncorhynchus clarki*. Unpublished report. 16 pp. Rogers, K.B. 2008. Using amplified fragment length polymorphisms to characterize purity of cutthroat trout in Colorado: results from 2007. 74 pp. Rosenlund, B.D. 2009. E-mail to Ann Carlson and Paul Abate, February 4, 2009.	***Comment #500-6*** *(ID 41)**:*** *Colorado River Cutthroat Trout A Conservation Agreement and Strategy (CRCT Coordination Team 2006) has been initiated by the wildlife agencies in Colorado, Utah and Wyoming to reduce threats to Colorado River cutthroat trout (CRCT), to stabilize or enhance its populations, and to maintain its ecosystems. The Forest Service, the Colorado Division of Wildlife and the USFWS are all signatories to the Agreement. In order for the threats to CRCT to be evaluated, all conservation populations and core conservation populations of Colorado River cutthroat trout should be specifically identified in the Affected Environment Chapter and the Environmental Consequences Chapter of the EIS.* **Response #500-6:** Information on conservation populations and core conservation populations has been added to the FEIS Sections 3.10, 3.11, 5.10, and 5.11. ***Comment #500-8*** *(ID 42)**:*** *Page 3-196 - 197: Special Status Species, Gross Reservoir – Information on Greenback cutthroat trout should be updated to include information on GB lineage populations west of the continental divide within the project area. This section states: "this species was petitioned for listing as threatened, but a 12-month finding by the USFWS in 2007 determined that listing was not warranted at that time (USFWS 2007)." This statement is incorrect for greenback cutthroat trout, it is referring to CRCT.* **Response #500-8:** Information on GB cutthroat trout lineage populations within the Project area has been added to FEIS Sections 3.10, 3.11, 5.10, and 5.11. The incorrect sentence referenced in the comment has been removed from the FEIS.

Comment Information	Comment	Comments and Responses
		Comment #500-9 *(ID 43)**:*** *Page 3-203-204: Special Status Species – Information on Colorado River cutthroat trout (CRCT) should be updated. Populations in Little Vazquez Creek, Steelman Creek, and Bobtail Creek have been identified as GB lineage populations.* **Response #500-9:** Information on Colorado River and GB cutthroat trout lineage populations has been added to the description of the Williams Fork River in FEIS Sections 3.10 and 3.11. ***Comment #500-1*** *(ID 44)**:*** *Page 3-212: Information should be updated to include GB lineage populations on the west slope within the project area.* **Response #500-1:** A summary of the information on the lineage of GB cutthroat trout populations was added to FEIS Sections 3.10 and 3.11. ***Comment #500-10*** *(ID 45)**:*** *Page 3-225: States "seven tributary streams with diversions have no sampling data and are not discussed below". However, Iron Creek has a core conservation population of CRCT, so there must be some sampling data. Table 3.9-6 shows that Little Vasquez Creek was last sampled in 1966. Since it has been identified as a GB lineage population, there must be more recent sampling data.* **Response #500-10:** Please see the response to Comment ID 44. FEIS Section 3.11 was updated with current information concerning cutthroat trout in the Project area. The update included additional sampling data from some of the tributary streams in 2010 to address data gaps and agency concerns.

Comment Information	Comment	Comments and Responses
		Comment #500-2 *(ID 46)**:*** *Page 3-231: Information for CRCT populations should be taken from Hirsch et al. 2006 instead of Young et al. 1996.* **Response #500-2:** FEIS Sections 3.10 and 3.11 were updated with current information concerning cutthroat trout in the Project area, including the Hirsch et al. 2006 reference. ***Comment #500-3*** *(ID 47)**:*** *Page 3-237-238: Sections on Steelman Creek and Bobtail Creek should discuss the GB lineage populations.* **Response #500-3:** Please see the responses to Comment IDs 44 and 45. ***Comment #500-4*** *(ID 48)**:*** *Page 4-291: Information on GBCT should be updated to include a discussion of the GB lineage populations on the west slope.* **Response #500-4:** Information on Colorado River and GB cutthroat trout lineage populations has been added to the analysis of impacts for the river segments FEIS Sections 5.10.1.2 and 5.11.1.2. ***Comment #500-11*** *(ID 49)**:*** *Page 4-295: CRCT trout and GB lineage populations occur above the diversions; however, the COE should disclose how the diversions affect these trout populations and individual fish. A description of each diversion structure should be provided. An analysis of each diversion structure should include the likelihood of fish entrainment and whether the structure blocks upstream fish movement. We*

Comment Information	Comment	Comments and Responses
		recognize that fish barriers protect cutthroat trout populations from invasion of nonnative species. **Response #500-11:** A summary of existing Colorado River cutthroat trout populations (including GB cutthroat trout lineage populations) is provided in Hirsch et al (2006) Range-wide Status of Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*). All of the Colorado River cutthroat trout populations in the Fraser and Williams Fork tributaries from which water is diverted are only identified above the diversions. The diversions are mostly mapped as complete or partial barriers, and all of the populations are described as isolated with the exception of North, Middle, and South Fork Ranch Creek, which are considered weakly connected. Non-native species, principally brook trout, are identified in some of the populations. The diversions do not include screens to prevent entrainment, and entrainment may occur. The Project alternatives do not include any physical modifications to the diversion structures or operations with the exception of increased water diversions, and the diversion structures are therefore are not analyzed in the Environmental Impact Statement (EIS). The risk of entrainment is expected to remain the same as under existing conditions for the Moffat Collection System operations.

Comment Information	Comment	Comments and Responses
Comment #575 Jared Polis, Member of Congress (CO-2) Congress of the United States House of Representatives, 2nd District, Colorado 501 Cannon House Office Building Washington, DC 20515	MAR. 15. 2010 2:16PM JARED POLIS NO. 462 P. 1 JARED POLIS 2ND DISTRICT, COLORADO 501 CANNON HOUSE OFFICE BUILDING WASHINGTON, DC 20515-0602 (202) 225-2161 (202) 226-7840 (FAX) website and email: http://polis.house.gov Congress of the United States House of Representatives COMMITTEES: COMMITTEE ON EDUCATION AND LABOR SUBCOMMITTEES: EARLY CHILDHOOD, ELEMENTARY AND SECONDARY EDUCATION HIGHER EDUCATION, LIFELONG LEARNING, AND COMPETITIVENESS HEALTHY FAMILIES AND COMMUNITIES COMMITTEE ON RULES STEERING AND POLICY March 15, 2010 Mr. Scott Franklin US Army Corps of Engineers - Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 Dear Mr. Franklin: Thank you for the opportunity to comment on the Draft EIS for the Moffat Collection System Project (and related Gross Reservoir Expansion), designated as NOW–2002–80762-DEN. I appreciate in particular your flexibility in adding additional time for comments, as this project has been a source of great confusion and concern for my constituents on both sides of the Continental Divide. At this point in the process, I cannot endorse the project as proposed, for a variety of reasons. My comments below will be in the form of a summary and amplification of some of what I've heard from constituents over the past year, and also include a few more personal comments from myself. Concerns about Construction Impact I will focus this section on concerns expressed by residents in the Coal Creek Canyon/Gross Reservoir area, as well as others from Gilpin and Boulder counties. As you know, and as noted in the DEIS (*DEIS 3-319*), the area around Gross Reservoir is home to a significant population of residents who depend on a two-lane highway for access, and who enjoy Gross Reservoir for their recreation and quality of life. **At this time, I am not satisfied that their interests have been properly addressed in the form of mitigation for possible future construction of a larger dam.** As noted in the DEIS, construction of the dam expansion will involve anywhere from 44-74 trips per day by large trucks, as well as a much larger number of worker trips, for over four years (*DEIS 4-340 et seq*). It is easy to forget if one lives in a larger community on the Front Range that residents of the Canyon must drive 20-30 minutes, under good traffic conditions, from Highway 93 to their homes, and every mile of that drive contains potential safety hazards, both DISTRICT OFFICES BOULDER OFFICE 4770 BASELINE ROAD, SUITE 220 BOULDER, CO 80303 303-494-5686 303-588-6007 (FAX) MOUNTAIN OFFICE 101 WEST MAIN STREET, SUITE 1010 FRISCO, CO 80443 970-668-3240 THORNTON OFFICE 1200 EAST 78TH AVENUE, SUITE 105 THORNTON, CO 80229 303-287-4159 PRINTED ON RECYCLED PAPER MAR-15-2010 04:03PM From: 303 5689007 ID:TRI LAKES Page:001 R=97%	***Comment #575-13*** *(ID 1013)**:*** *Thank you for the opportunity to comment on the Draft EIS for the Moffat Collection System Project (and related Gross Reservoir Expansion), designated as NOW-2002- 80762-DEN. I appreciate in particular your flexibility in adding additional time for comments, as this project has been a source of great confusion and concern for my constituents on both sides of the Continental Divide. At this point in the process, I cannot endorse the project as proposed, for a variety of reasons. My comments below will be in the form of a summary and amplification of some of what I've heard from constituents over the past year, and also include a few more personal comments from myself.* **Response #575-13:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to the National Environmental Policy Act of 1969, as amended (NEPA). ***Comment #575-11*** *(ID 1014)**:*** *I will focus this section on concerns expressed by residents in the Coal Creek Canyon/Gross Reservoir area, as well as others from Gilpin and Boulder counties. As you know, and as noted in the DEIS (DEIS 3-319), the area around Gross Reservoir is home to a significant population of residents who depend on a two-lane highway for access, and who enjoy Gross Reservoir for their recreation and quality of life. At this time, I am not satisfied that their interests have been properly addressed in the form of mitigation for possible future construction of a larger dam. As noted in the DEIS, construction of the dam expansion will involve anywhere from 44-74 trips per day by large trucks, as well as a much larger number of worker trips, for over four years (DEIS 4-340 et seq). It is easy to forget if one lives in a larger community on the Front Range that*

Comment Information	Comment	Comments and Responses
	MAR. 15. 2010 2:16PM JARED POLIS NO. 462 P. 2 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 2 to motorists and the bicyclists and motorcyclists who frequent Highway 72. Adding large haul, heavily loaded trucks to the mix concerns residents (and me) greatly, and I believe Denver Water has an obligation to minimize that traffic *even if such mitigation adds to the cost of the project.* It has been suggested *(Comments of The Environmental Group, Coal Creek Canyon, hereafter referred to as "PEG Comments")* that the DEIS's assertion that producing sand-sized material for dam construction on-site (greater than the 60% share noted in the DEIS) would be prohibitively expensive is not accurate, or at least not supported by DEIS documentation. At the very least, the final EIS should document in detail how this conclusion was reached, and preferably should make cost concessions to drastically minimize heavy truck usage of Highway 72. If the latter is deemed not possible, extensive mitigation should occur, including returning the highway to pre-construction condition, scheduling periods of no-traffic during the work day, and investigating additional use of the nearby railroad. The DEIS *(p. 4-401 et seq)* describes the excavation of a quarry on the eastern shore of the reservoir, totaling 30 acres which would not be reclaimed. Further, the proposed project envisions the destruction of tens of thousands of trees in the inundation area and elsewhere *(DEIS 4-230)*, which will not be replanted until the expanded reservoir is filled. These and other concerns of residents (especially around noise and air quality, see PEG Comments) come under the general category of "quality of life," which is directly tied to home values. Residents believe (and I agree) that these concerns were given short shrift in the DEIS: While it is undeniably true, in the old saying, that you have to break some eggs to make an omelet, the sensitivity here is that the residents and recreational users of Coal Creek Canyon do not stand to benefit at all from the project, but stand to suffer many of the consequences. It is incumbent therefore upon Denver Water to mitigate these concerns to the greatest extent possible, even, again, if such mitigation increases the project cost. The primary purpose of NEPA is to identify actions that have the least possible environmental impact, and Title I of said act requires federal agencies to use "all practicable means" to ensure humans and nature can co-exist in harmony, and also to "promote the widest range of beneficial uses of the environment without undesirable …consequences." While the term "practicable" has been interpreted somewhat inconsistently in the past, I believe the circumstances of this case – where a sizeable local community ("community" defined both in its human and ecological senses) bears the brunt of the "consequences" but enjoys none of the benefit – clearly point toward aggressive mitigation of environmental damage caused by the dam expansion. Reclamation plans, or lack thereof, for the gravel quarry should be reconsidered. The replanting schedule should be made more aggressive, and the inundation of rare plant communities should be looked at in far more detail than it is in the DEIS (where it is dismissed as a non-impediment to the preferred alternative), and avoided. Concerns about Project Need and Water Conservation MAR-15-2010 04:03PM From: 303 5689007 ID:TRI LAKES Page:002 R=97%	*residents of the Canyon must drive 20-30 minutes, under good traffic conditions, from Highway 93 to their homes, and every mile of that drive contains potential safety hazards, both to motorists and the bicyclists and motorcyclists who frequent Highway 72. Adding large haul, heavily loaded trucks to the mix concerns residents (and me) greatly, and I believe Denver Water has an obligation to minimize that traffic even if such mitigation adds to the cost of the project. It has been suggested (Comments of The Environmental Group, Coal Creek Canyon, hereafter referred to as "PEG Comments") that the DEIS's assertion that producing sand-sized material for dam construction on-site (greater than the 60% share noted in the DEIS) would be prohibitively expensive is not accurate, or at least not supported by DEIS documentation. At the very least, the final EIS should document in detail how this conclusion was reached, and preferably should make cost concessions to drastically minimize heavy truck usage of Highway 72. If the latter is deemed not possible, extensive mitigation should occur, including returning the highway to pre-construction condition, scheduling periods of no-traffic during the work day and investigating additional use of the nearby railroad.* **Response #575-11:** As stated in the Draft Environmental Impact Statement (DEIS) Section 2.3.2.1, the majority of the aggregate required to construct the raised dam would be produced on-site. The exact amount that may be needed to be imported to the site would not be known until the dam design is complete and quarry activities begin. For EIS planning purposes, it was assumed that 40 percent (%) of the aggregate material, plus sand, fly-ash and concrete, would be obtained from off-site sources. The Board of Water Commissioners (Denver Water) is coordinating with Boulder County to minimize

Comment Information	Comment	Comments and Responses
	MAR. 15. 2010 2:17PM JARED POLIS NO. 467 P. 3 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 3 As expressed by concerned residents (refer to *PEG Comments*, *Trout Unlimited Comments*, and numerous individual comments), this is both a substantive and a political shortfall of the DEIS. Substantively, NEPA requires Impact Statements to set up and choose from among alternatives that cover the broad range of practicable alternatives to solve a particular problem. Unfortunately, it is not established by the DEIS that the problem to be addressed actually exists, or at least not in the form described, and therefore the alternatives chosen for evaluation in the DEIS are not an accurate description of the range of "solutions." The other main function of NEPA, which envisions clear communication to the public about the purpose of federal actions and the process undertaken to choose from among alternatives, has been greatly hampered in this case by questionable (or at least undocumented) assumptions and seemingly faulty logic. **Both of these shortfalls must be addressed, at the risk of losing a great deal of trust among Colorado residents, for this and future actions.** Perhaps the single most often noted concern with the DEIS is the central assumption made about the shortfall in the Denver Water system, which is calculated at 18,000 AF by 2030 *(DEIS, 1-11-12)*. It is important to note that much of the negative reaction to the analysis on water shortfalls can more accurately be called confusion, which in itself is a major concern. It is hard to avoid the observation that the particular metrics and technique used to arrive at this number happen to be those that would be likely to produce a larger shortfall. For instance, the analysis uses the data years 1973-1999, but does not seem to fully integrate the years since, which have seen large decreases in water use (mostly as a result of the 2001-2 drought). As a result, the DEIS incorporates only 16,000 AF of conservation savings into the 2030 estimate, a number over a decade old *(DEIS p. 1-12)*, when Denver Water's own Strategic Rate Initiative (2010) envisions that same 16,000 AF **by 2016**, and 29,000 by 2045 (*PEG Comments*). Analysis relied upon by the DEIS reports a conservation savings by Denver Water's customers of 27,500 AF in the period from 1980 to 1997 (18 years), which included no significant droughts, but only 16,000 AF more in the period from 2010 to 2030 (20 years). There is no explanation given for this predicted 48% slowdown in conservation gains, other than speculation about "demand hardening," which is at best weakly supported. Indeed, the DEIS considers even 16,000 AF of savings shaky ("… no compelling analysis or basis to be confident of these savings," *DEIS 1-17)*, which paints a remarkably bleak picture not shared by most observers of the past several years of *actual results*. The residents of the Denver area have, rather, become vastly more responsible users of our water resources since 2002 (nearly 30% decline 2002-2008), and there is no evidence (or at least no evidence presented in the DEIS) that the marginal return of additional conservation, either voluntary or regulatory, is declining. Indeed, it is quite easy to envision, in the absence of the Moffat/Gross project, the 18,000 AF "shortfall" disappearing into the paper calculations from which it sprang. Such a result would be a win-win for nearly all parties, but there is no extensive analysis in the DEIS of any possible public reaction to a no-action choice other than the trends thought to exist in 2002 and 1997, based on the two decades before that. This, it seems to residents (and me) is a disservice both to Colorado, and to the NEPA process itself. It is true that MAR-15-2010 04:03PM From: 303 5689007 ID:TRI LAKES Page:003 R=97%	traffic impacts to local residents and met with the Colorado Department of Transportation (CDOT) to discuss the potential increase in truck traffic on State Highway (SH) 72 during construction as well as options for managing and mitigating Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including improving turnouts on SH 72 for slow-moving traffic. Denver Water will work with Jefferson and Boulder counties to address local traffic concerns. Denver Water hired an independent consultant to evaluate using the railroad to transport material to the site. The consultant found that using the railroad would not be feasible for the Project because of the technical, logistical, topographical and cost problems associated with unloading material at the existing railroad siding. Based on discussions with Union Pacific Railroad, the consultant determined that new infrastructure would need to be constructed to accommodate the rail cars and avoid conflicts with the coal train traffic on the mainline; handle unloading of the various materials into trucks, which would be needed to transport the material to the dam site; and avoid conflicts with traffic on Gross Dam Road. A new siding would be very difficult and expensive (approximately $20 million) to construct due to the constraints of the existing topography and would require a significant amount of material to be hauled to the siding by truck on SH 72. ***Comment #575-18*** *(ID 1015)**:*** *The DEIS (p. 4-401 et seq) describes the excavation of a quarry on the eastern shore of the reservoir, totaling 30 acres which would not be reclaimed. Further, the proposed project envisions the destruction of tens of thousands of trees in the inundation area and elsewhere (DEIS 4-230), which will not be replanted until the expanded reservoir is filled. These and other concerns of residents*

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	MAR. 15. 2010 2:17PM JARED POLIS NO. 462 P. 4 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 4 Denver Water does not fully control conservation practices at a regulatory level (the DEIS notes as much on p. 1-17, by remarking that short-term conservation strategies are "beyond the scope of the EIS"), but it should not stop the DEIS from fully and objectively analyzing a no-action (or different action) alternative in light of conservation developments in the past few years. Additionally, the DEIS relies heavily on demand analyses done in 2002 *(DEIS 1-9, 1-12)*, which (reasonably for then, not for now) assumed such demand-increasing trends as full employment in the Denver area, no recessions, increased federal and state spending, as well as increasing per capita consumption of water. Needless to say, the combination of the 2008-10 recession and the 2001-2 drought have changed those assumptions drastically. The Final EIS, therefore, would benefit greatly from a more exhaustive and realistic estimation of projected conservation trends and available alternative sources of additional water, including the increased use of other reservoirs. That the four alternatives chosen for extensive analysis all included expansion of Gross Reservoir *(DEIS 1-4)* and none included even a realistic – to say nothing of cautiously optimistic – assessment of the additional potential of water conservation or coinciding utilization of existing infrastructure, is not lost on my constituents, and has been interpreted as "rigging the game," a potentially catastrophic result for future NEPA work in Colorado. Finally, my constituents have noted a fundamental disconnect in some of the core reasoning in the DEIS supporting additional raw water diversion into Gross Reservoir. While the DEIS considers four different elements of the "need" for the project, they all seem to revolve around concerns over the impact of extreme drought and disaster on the Denver supply. But the 2001-2 drought, considered a 300 year event, never produced more than a Stage 2 emergency, suggesting an excess of caution on the part of water planners that must be weighed against the impact of the preferred alternative. Moreover, as noted in the DEIS *(1-14)*, Denver's Strategic Reserve of 30,000 AF, *which is explicitly authorized to address these types of drought or disaster conditions*, is not considered as mitigative of the project need. Again, I will return to the fundamental dynamic in this project (and to be fair, most trans-basin diversions), where all of the negative impact occurs where none of the benefit accrues. And in this case, the impacts are large, both to the residents and recreation users of the Gross area, and ecologically and economically to the residents of the source counties (see following section). It is unavoidable in these cases, and central to the requirements of NEPA, that it be exhaustively shown that a) A real problem exists to be solved, and b) There is no feasible alternative to the chosen one. The DEIS fails on both accounts. Concerns about Source Rivers and Watersheds In addition to Boulder and Gilpin counties, the Second Congressional District includes the counties of Grand and Summit, sources for the water diverted by the Moffat Tunnel and Windy Gap projects. My office has received numerous comments from residents of these two West MAR-15-2010 04:04PM From: 303 5689007 ID:TRI LAKES Page:004 R=97%	*(especially around noise and air quality, see PEG Comments) come under the general category of "quality of life," which is directly tied to home values. Residents believe (and I agree) that these concerns were given short shrift in the DEIS: While it is undeniably true, in the old saying, that you have to break some eggs to make an omelet, the sensitivity here is that the residents and recreational users of Coal Creek Canyon do not stand to benefit at all from the project, but stand to suffer many of the consequences. It is incumbent therefore upon Denver Water to mitigate these concerns to the greatest extent possible, even, again, if such mitigation increases the project cost.* **Response #575-18:** The location of the quarry is illustrated on DEIS Figure 2-3 and details regarding the operation of the quarry are provided in DEIS Section 2.3. Visual impacts from the quarry at Gross Reservoir are discussed in DEIS Section 4.15.1. An additional mitigation measure has been added to FEIS Section 5.17 to address reclamation of the quarry site. The proposed quarry site would be primarily located on U.S. Forest Service (USFS) land and therefore Denver Water would work closely with the USFS to ensure appropriate reclamation of this site and any alternative quarry sites. Additionally, it is important to note that a majority of the proposed quarry would be below the new high water line; thus, the planting of trees and contouring would not be needed. Revegetation of the cleared area above the inundation line would be done in the first appropriate season following timber removal, and there would not be a gap of several years between clearing and revegetation. Within the expanded inundation area, there could be a gap of several years between timber removal and inundation, and no revegetation would be conducted below the new high water line.

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	MAR. 15. 2010 2:17PM JARED POLIS NO. 462 P. 5 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 5 Slope counties questioning the DEIS analysis of environmental and recreational impacts to the Upper Colorado basin. The health of the Blue, Fraser, and Colorado rivers is crucial to the economy and quality of life of these counties. First, the long term impacts and effects of eliminating the *high* flow periods of the Fraser River are not fully addressed in the Draft Environmental Impact Study. The diversion plan, roughly speaking, would take water from the Upper Colorado area in wet years (*DEIS 4-5*), but eliminating these high flow periods will result in further stream degradation, increased algae and weed growth and warmer water temperatures, particularly in the Fraser River. These certain results of the preferred alternative would severely impact the economic and ecological base of the two counties, affecting fish habitat, whitewater conditions, and the overall aesthetic experience. As one constituent notes in a letter: > I raft the Grand County rivers when there is water in them, and noticed that the water clarity in the Colorado below Kremmling was greatly reduced this year (Summer, 2009). In 30 years, I have not seen such an alarming amount of algae in that stretch of the Colorado River. (*pers comm.*) If the preferred alternative is implemented, diversion from historic flows of the Fraser will near 80%, greatly increasing the economic, ecological, and aesthetic loss to Grand County residents and recreationists. The DEIS does not take these concerns seriously enough, in the opinion of many of my constituents. In fact the document barely notes the potential negative impact of diversion during wet years, and the loss of "flushing" flows. Particularly striking is the DEIS' contention that the "Moffat Project alternatives would have none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments *(DEIS 5-46)*," which may be true for some hypothetical stream at or near historic pristine conditions, but certainly not for streams near breaking points with 80% plus diversion. Such statements do not pass the "laugh test" with most of my West Slope constituents, and follow directly from the DEIS' decision to consider 2006 conditions, as opposed to historic conditions, as its baseline. Also, the DEIS does not take into account the cumulative effect of both the Moffat Tunnel project and the Windy Gap Firming project in its section on "Cumulative Effects" (*Chapter 5*). Although the Windy Gap Firming Project is under the control of the Bureau of Reclamation and Northern Water District, both projects impact the Fraser River and the Colorado River. The Moffat Tunnel EIS process is not the first to do a poor job accounting for cumulative impact of concurrent or planned actions, and won't be the last, but given the precarious health of the Fraser (the 3rd most endangered river in the nation according to American Rivers) and Colorado (subject to an *additional* 9% flow decrease according to the DEIS (*5-30*)), there is no room left for choosing convenient "baseline" conditions that minimize perceived impacts. We are at a stage when only the most cautious approach to base-lining impacts in an EIS process is consistent with NEPA's charge to "*promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man*" *(NEPA Preamble)*. MAR-15-2010 04:04PM From: 303 5689007 ID:TRI LAKES Page:005 R=97%	Denver Water would work with the USFS to ensure that forest clearing and revegetation would be consistent with National Forest standards. Removal of trees in the new inundation area would create a temporary major visual impact until the reservoir fills, which was described in DEIS Section 4.15. The revegetation plan for Gross Reservoir would be prepared after completion of the FEIS and prior to construction for those areas above the new high water line. All Gross Reservoir construction and operation activity would be conducted within the applicable noise standards and guidelines as administered by Boulder County and the U. S. Environmental Protection Agency (EPA), as summarized in FEIS Table 5.14-1. The Project would comply with all applicable State and Federal air quality rules, and would cooperate with the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division (APCD) in ensuring compliance. CDPHE is the State agency responsible for ensuring that Colorado attains, maintains, and enforces National Ambient Air Quality Standards. Through the APCD construction permit process and the conformity determination process, the State regulates pollutant emissions that have the potential to endanger public health and welfare. A Corps' Section 404 Permit, if issued for one of the Moffat EIS alternatives, would require that construction activities conform to Colorado State Air Quality Standards. For purposes of EIS analysis, the Corps assumes construction equipment used by the contractors would function as designed and conform to applicable noise emission standards. Denver Water would comply with applicable noise ordinances.

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	MAR. 15. 2010 2:17PM JARED POLIS NO. 462 P. 6 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 6 Summit County constituents share Grand County's concerns regarding the DEIS and its potential impacts in Summit County, especially on the Blue River. They feel the document has serious flaws and that reasonable alternatives were not provided. May through September is a critical recreation period on the Blue River and the DEIS does not address seasonal and daily impacts of the project, even though it does remark that recreational impacts on streams can be "major (*DEIS 5-49*)," without further comment. There are currently five commercial rafting companies that run operations on the Blue River during these months. Decreased flows on the Blue River would cause serious economic impacts to these companies and the people they employ. The DEIS also does not address concerns regarding decreased water levels in Dillon Reservoir, which may lead to increased costs for the Town of Dillon to operate their marina. Lower reservoir levels also increase the amount of dust in the environment, an impact not addressed at all in the DEIS. Finally, the DEIS fails to consider the ongoing issues and the cumulative impacts for the entire River Basin. There are several ways in which the permit for the Moffat project, if issued, could successfully address these various issues. Most important are two concepts: First, a commitment to abide by Grand County's Stream Management Plan; and Second, a condition of permitting that would implement adaptive management for the diversion plan. Adaptive management is a concept whereby extensive monitoring is done under all conditions (wet and dry years) and triggers are set for certain indicators beyond which diversions would be cut off. Stream temperature, sufficient flushing flows, and other criteria can be set in consultation with agency and outside ecologists and biologists. I won't attempt to recommend the specifics of those kinds of arrangements here, but I will be keenly interested in whether they are in place before the end of the EIS process before I can support the project. ***** In conclusion, I would like to reiterate my appreciation for the extra time given for commenters to digest the analysis contained in the DEIS. But I would also like to reiterate my concern on several levels with the status of the project. First, the DEIS is confusing, and contains numerous instances of poor or unclear logic, or faulty (or at least undocumented) assumptions. This is troubling both on grounds of the immediate impending decision and for future NEPA actions. Second, the DEIS fails to account for existing conditions and dynamics on a range of topics: From the already severely depleted health of the Fraser, Colorado, and other rivers affected by the action alternatives, to the recent success and future potential of water conservation on the Front Range. In the end, I am worried that the Moffat Tunnel project, if permitted and constructed as currently constituted, would have the effect of placing another bunch of straws on the proverbial camel's back, and would do so under conditions of "need" that are less than persuasive. Under these conditions, an EIS process must be especially careful not to cherry pick baselines and assumptions that tend to minimize potential impacts.. And that is the essence of my concern. MAR-15-2010 04:04PM From: 303 568900? ID:TRI LAKES Page:006 R=97%	***Comment #575-19*** *(ID 1016)**:*** *The primary purpose of NEPA is to identify actions that have the least possible environmental impact, and Title I of said act requires federal agencies to use "all practicable means" to ensure humans and nature can co-exist in harmony, and also to "promote the widest range of beneficial uses of the environment without undesirable ... consequences." While the term "practicable" has been interpreted somewhat inconsistently in the past, I believe the circumstances of this case where a sizeable local community ("community" defined both in its human and ecological senses) bears the brunt of the "consequences" but enjoys none of the benefit - clearly point toward aggressive mitigation of environmental damage caused by the dam expansion. Reclamation plans, or lack thereof, for the gravel quarry should be reconsidered. The replanting schedule should be made more aggressive, and the inundation of rare plant communities should be looked at in far more detail than it is in the DEIS (where it is dismissed as a non-impediment to the preferred alternative), and avoided.* **Response #575-19:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental and social effects according to NEPA and the Corps' Clean Water Act (CWA) Section 404 regulations, which includes consideration of practicable alternatives. Also, please see the response to Comment ID 1015 regarding the quarry site and revegetation of the Gross Reservoir shoreline. ***Comment #575-14*** *(ID 1017)**:*** *As expressed by concerned residents (refer to PEG Comments, Trout Unlimited Comments, and*

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	MAR. 15. 2010 2:18PM JARED POLIS NO. 462 P. 7 U.S. Rep Polis – Comments on Moffat Collection DEIS – March 15, 2010 – Page 7 Please feel free to contact me or my office with any response you might have. Sincerely, Jared Polis Member of Congress (CO-2) MAR-15-2010 04:04PM From: 303 5689007 TO:TRI LAKES Page:007 R=97%	*numerous individual comments), this is both a substantive and a political shortfall of the DEIS.* **Response #575-14:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #575-7*** *(ID 1018)**:*** *Substantively, NEPA requires Impact Statements to set up and choose from among alternatives that cover the broad range of practicable alternatives to solve a particular problem. Unfortunately, it is not established by the DEIS that the problem to be addressed actually exists, or at least not in the form described, and therefore the alternatives chosen for evaluation in the DEIS are not an accurate description of the range of "solutions." The other main function of NEPA, which envisions clear communication to the public about the purpose of federal actions and the process undertaken to choose from among alternatives, has been greatly hampered in this case by questionable (or at least undocumented) assumptions and seemingly faulty logic. Both of these shortfalls must be addressed, at the risk of losing a great deal of trust among Colorado residents, for this and future actions.* **Response #575-7:** The Purpose and Need for the Project is described in detail in DEIS and FEIS Chapter 1. For NEPA/404 analysis, the Corps defines a Project purpose statement in light of an applicant's stated objectives as well as the public's perspective (33 Code of Federal Regulations (CFR) Part 325 Appendix B, Section 9(b)(4). The Applicant identifies the purpose(s) and need(s) to be addressed by the Proposed Action (may be single or multiple needs). The Purpose and Need for the Moffat Project is to develop 18,000 acre-feet per year (AF/yr) of new,

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		annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. Therefore, using the Purpose and Need was appropriately used as a criterion for alternative screening. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The major tools used to interact with the public are the public notice and public hearing. The public notice is the primary method of advising all interested parties of a proposed activity for which a permit is sought and of soliciting comments and information necessary to evaluate the probable beneficial and detrimental impacts on the public interest. Public notices are used to announce hearings. Public notices on proposed projects always contain a statement that anyone commenting may request a public hearing. Public hearings are held if comments raise substantial issues which cannot be resolved informally and the Corps' decision maker determines that information from

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		such a hearing is needed to make a decision (see 33 CFR 327). Four public hearings were held for the Moffat Project, including an open house held at these events. ***Comment #575-2*** *(ID 1019)**:*** *Perhaps the single most often noted concern with the DEIS is the central assumption made about the shortfall in the Denver Water system, which is calculated at 18,000 AF byZ030 (DEIS, 1-11-12). It is important to note that much of the negative reaction to the analysis on water shortfalls can more accurately be called confusion, which in itself is a major concern. It is hard to avoid the observation that the particular metrics and technique used to arrive at this number happen to be those that would be likely to produce a larger shortfall, For instance, the analysis uses the data years 1973-1999, but does not seem to fully integrate the years.since, which have seen large decreases in water use (mostly as a result of the 2001-2 drought). As a result, the DEIS incorporates only 16,000 AF of conservation savings into the 2030 estimate, a number over a decade old (DEIS p. 1-12) when Denver Water's own Strategic Rate Initiative (2010) envisions that same 16,000 AF by 2016, and 29,000 by 2045 (PEG Comments). Analysis relied upon by the DEIS reports a conservation savings by Denver Water's customers of 27,500 AF in the period from 1980 to 1997 (18 years), which included no significant droughts, but only 16,000 AF more in the period from 2010 to 2030 (20 years). There is no explanation given for this predicted 48% slowdown in conservation gains, other than speculation about "demand hardening," which is at best weakly supported. Indeed, the DEIS considers even 16,000 AF of savings shaky (" ... no compelling analysis or basis to be confident of these savings," DEIS 1-17), which paints a remarkably bleak picture not shared by most observers of the past several years of actual results.*

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		Response #575-2: The shortfall of 18,000 AF/yr is intended to meet an "unconstrained" demand of 363,000 AF/yr. Denver Water's estimated 2032 demand is 379,000 AF/yr. After backing out the 16,000 AF/yr for additional Conservation, Denver Water's estimated 2032 demand is 363,000 AF/yr. An independent review of the projected conservation savings of 16,000 AF/yr. was conducted as part of the EIS analysis. Even though Denver Water is not required by any regulations to implement conservation, Denver Water is relying upon these future savings in its demand projections to calculate the need for 18,000 AF/yr of new firm yield. "Demand hardening" is caused through conservation. As customers become more efficient in their water use, their ability to reduce consumption during a drought under the same set of drought restrictions is also reduced. A simple example is lawn watering efficiency. Denver Water's Stage II drought restrictions are designed to reduce lawn watering significantly but keeps lawns alive. If customers become more efficient in their lawn watering through conservation, the closer their use is to just keeping lawns alive; therefore, they would not be able to reduce as much in a drought. If the conservation savings are used to serve new customers, then the water is not available to buffer against a future drought. As shown in FEIS Table 1-1, Denver Water has accounted for current conservation goals when estimating future demand. Denver Water has not slowed down conservation goals, in fact it has accelerated its goals. The goal of 29,000 AF/yr and 16,000 AF/yr have been accelerated and resulted in a reduction in demand of 20 percent for Denver Water.

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		Comment #575-3 *(ID 1020)**:*** *The residents of the Denver area have, rather, become vastly more responsible users of our water resources since 2002 (nearly 30% decline 2002-2008), and there is no evidence (or at least no evidence presented in the DEIS) that the marginal return of additional conservation, either voluntary or regulatory, is declining. Indeed, it is quite easy to envision, in the absence of the Moffat/Gross project, the 18,000 AF "shortfall" disappearing into the paper calculations from which it sprang. Such a result would be a win-win for nearly all parties, but there is no extensive analysis in the DEIS of any possible public reaction to a no-action choice other than the trends thought to exist in 2002 and 1997, based on the two decades before that. This, it seems to residents (and me) is a disservice both to Colorado, and to the NEPA process itself. It is true that Denver Water does not fully control conservation practices at a regulatory level (the DEIS notes as much on p. 1-17, by remarking that short-term conservation strategies are "beyond the scope of the EIS"), but it should not stop the DEIS from fully and objectively analyzing a no-action (or different action) alternative in light of conservation developments in the past few years.* **Response #575-3:** Water conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously

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		jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 acre-feet [AF]) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Denver Water has an aggressive 10-year conservation goal. Starting in 2007, Denver Water has been encouraging their customers to use 22% less water than they were consuming before the 2002 drought, by 2016. To date, Denver Water customers are using 18% less water than they were before the 2002 drought. A summary of conservation measures implemented by Denver Water is provided in Table 1-2 of the DEIS and FEIS. Under NEPA, every EIS must analyze a No Action Alternative, which is what is expected to occur if the proposed Project does not get permitted. The EIS then compares the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. Denver Water assumed that growth would still occur and identified ways to meet future water demands through operational controls. The Corps feels the steps outlined for various restriction scenarios were a reasonable approach for developing the No Action Alternative.

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		Comment #575-4 *(ID 1021)**:*** *Additionally, the DEIS relies heavily on demand analyses done in 2002 (DEIS 1-9, 1-12), which (reasonably for then, not for now) assumed such demand-increasing trends as full employment in the Denver area, no recessions, increased federal and state spending, as well as increasing per capita consumption of water. Needless to say, the combination of the 2008-10 recession, and the 2001-2 drought have changed those assumptions drastically.* **Response #575-4:** The Corps and Denver Water completed an updated in 2010 of the population, environment, and water demand projections which are described in Appendix A and incorporated into the EIS. Recent Denver Regional Council of Governments (DRCOG) and State Demographer projections indicate a slight decline in population projections but an increase in Denver area employment projections. These projections are not inconsistent with the DRCOG projections originally used in Denver Water's model. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. ***Comment #575-5*** *(ID 1022)**:*** *The Final EIS, therefore, would benefit greatly from a more exhaustive and realistic estimation of projected conservation trends and available alternative sources of additional water, including the increased use of other reservoirs. That the four alternatives chosen for extensive analysis all included expansion of Gross Reservoir (DEIS 1-4) and none included even a realistic - to say nothing of cautiously optimistic - assessment of the additional potential of water conservation or coinciding utilization of existing infrastructure, is not lost on my constituents, and has been interpreted as "rigging the game," a potentially catastrophic result for future NEPA work in Colorado.*

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		Response #575-5: Please see the response to Comment ID 1020. As described in DEIS Section 1.4.3.1, conservation measures are designed to achieve long-term sustainable reductions in water use. There is a considerable amount of uncertainty when implementing conservation programs as there is no way to be certain the predicted savings would occur. However, monitoring and program adjustment can help assure anticipated conservation changes would be achieved. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. A complete listing is found in Chapter 2 and Appendix B. Explanations of why and how Gross Reservoir options are part of the final projects evaluated in the EIS are included in the screening descriptions. ***Comment #575-6*** *(ID 1023)**:*** *Finally, my constituents have noted a fundamental disconnect in some of the core reasoning in the DEIS supporting additional raw water diversion into Gross Reservoir. While the DEIS considers four different elements of the "need" for the project, they all seem to revolve around concerns over the impact of extreme drought and disaster on the Denver supply. But the 2001•2 drought, considered a 300 year event, never produced more than a Stage 2 emergency, suggesting an excess of caution On the part of water planners that must be weighed against the impact of the preferred alternative. Moreover, as noted in the DEIS (1-14), Denver's Strategic Reserve of 30,000 AF, which is explicitly authorized*

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		to address these types of drought or disaster conditions, is not considered as mitigative of the project need. **Response #575-6:** In addition to 2002, there were four single dry years in the 45-year study period (1947-1991) when the Moffat Collection System would have run out of water. Additionally, there are other years when the Moffat Collection System would have been close to running out of water. Actual Moffat Collection System operations in 2002 demonstrate the lack of a reliable water supply. Denver Water would have run out of water if it had not implemented emergency measures to preserve and increase water in the Moffat Collection System, including mandatory restrictions, strict surcharges for water use, reducing minimum bypass flows on western slope streams, shutting off the Moffat Water Treatment Plant (WTP) during portions of the drought, and constructing infrastructure and pumping treated water from the South System into inefficient ditches for delivery and re-treatment by raw water customers. These types of emergency operations are inefficient, expensive tactics that do not provide an adequate permanent solution for the lack of water supply available to the Moffat WTP. Further, one of three treatment plants was unavailable during peak demand season when a minimum of two plants were needed to meet demands. If an unplanned outage had occurred at one of the remaining operational plants, service to customers would have been interrupted. The need for the 30,000 AF safety factor (i.e., Strategic Water Reserve) is described in Appendix A (Review of Denver Water's Integrated Resources Plan [IRP], p. 11 and Supplemental Evaluation of Denver Water Demand Projections, pgs. 13-15). As stated, the safety factor is intended to protect against a host of uncertainties, including the

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		constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. These risks are not accounted for in the firm yield modeling and calculations, nor are they considered in the water demand projections. The safety factor must be held apart from the derivation of the 18,000 AF/yr. shortfall to appropriately reflect the risks which occur outside the models, methods and procedures to calculate that need. Mandatory drought restrictions are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 AF/yr. Drought responses are primarily intended to respond to droughts of unknown duration and severity, unexpected emergencies and infrastructure failure. Unlike the Strategic Water Reserve is a supply side solution, drought response is a demand side device designed to quickly bring demand down in response to reduced supply. Drought response is temporary in nature and inherently uncertain, driven by immediate conditions. Modeling water supply and firm yield assumes a perfectly operating system over a long period of time. This is a widely accepted approach for evaluating a water utility's ability to meet needs under varying hydrologic conditions, while preserving management's prerogative to deploy drought response as circumstances require. As shown in analyses of past droughts and recently demonstrated in the early-2000s drought, there is an

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		imbalance in reservoir storage and water supplies between the North and South systems. This imbalance results in an unreliable water supply for the Moffat WTP and Moffat Collection System raw water customers, system-wide vulnerability issues, and limited operational flexibility of the treated water system. The North System (also known as the Moffat Collection System) and the South System are geographically distinct and are not physically connected. Denver Water's Collection System is vulnerable to manmade and natural disasters because 90% of available reservoir storage and 80% of available water supplies rely on the unimpeded operation of Strontia Springs Reservoir and other components of Denver's Water's South System. The imbalance in water supply between the North and South Systems results in a substantial vulnerability for Denver Water's raw water customers and diminishes the operational flexibility needed to meet customer demand under a variety of conditions. Although Denver Water maintains a 30,000 AF Strategic Water Reserve, this reserve is not available to the Moffat WTP and Moffat Collection System raw water customers. Furthermore, demand in 2002 was 285,000 AF/yr and water supply was 345,000 AF/yr. Even with restriction programs in place, decrease in bypass flows, and other emergency measures, the North end of Denver Water's system, was still short on water supply. ***Comment #575-15*** *(ID 1024)**:*** *Again, I will return to the fundamental dynamic in this project (and to be fair, most trans-basin diversions), where all of the negative impact occurs where none of the benefit accrues. And in this case, the impacts are large, both to the residents and recreation users of the Gross area, and ecologically and economically to the residents of the source*

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		counties (see following section). It is unavoidable in these cases, and central to the requirements of NEPA, that it be exhaustively shown that a) A real problem exists to be solved, and b) There is no feasible alternative to the chosen one. The DEIS fails on both accounts. **Response #575-15:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #575-1*** *(ID 1025)**:*** *In addition to Boulder and Gilpin counties, the Second Congressional District includes the counties of Grand and Summit, sources for the water diverted by the Moffat Tunnel and Windy Gap projects. My office has received numerous comments from residents of these two West Slope counties questioning the DEIS analysis of environmental and recreational impacts to the Upper Colorado basin. The health of the Blue, Fraser, and Colorado rivers is crucial to the economy and quality of life of these counties.* **Response #575-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #575-8*** *(ID 1026)**:*** *First, the long term impacts and effects of eliminating the high flow periods of the Fraser River are not fully addressed in the Draft Environmental Impact Study. The diversion plan, roughly speaking, would take water from the Upper Colorado area in wet years (DEIS 4-5), but eliminating these high flow periods will result in further stream degradation, increased algae and weed growth and warmer water temperatures, particularly in the Fraser River. These*

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		certain results of the preferred alternative would severely impact the economic and ecological base of the two counties, affecting fish habitat, whitewater conditions, and the overall aesthetic experience. As one constituent notes in a letter: **Response #575-8:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While stream flows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cubic feet per second (cfs) versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the

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		figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way (ROW) agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing

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		systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. Didymo is a native species that is creating water quality issues State-wide, not just in Grand County. Didymo apparently prefers cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Section 5.11. A discussion of the effects of flushing flows on aquatic resources was included in the DEIS and an expanded discussion is included in the FEIS in Sections 3.11, 4.6.11, and 5.11. Additional evaluation of water temperature on the Fraser and Colorado River were performed. See FEIS Sections 4.6.2 and 5.2. ***Comment #575-17*** *(ID 1027)**:*** *I raft the Grand County rivers when there is water in them, and noticed that the water clarity in the Colorado below Kremmling was greatly reduced this year (Summer, 2009). In 30 years, I have not seen such an alarming amount of algae in that stretch of the Colorado River (pers comm.)*

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		Response #575-17: Clarity is a water quality parameter influenced by many factors, including nutrients, temperature, mineral content, upstream erosion/sediment loading, pH, and others and thus shows great variability. The evaluation of clarity in the EIS relied on data available for multiple years. The third paragraph of DEIS Section 4.9.1.2 states: “Didymo apparently prefer cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo.” Additional discussions on water quality were added to FEIS Sections 4.6.11 and 5.11. ***Comment #575-9*** *(ID 1028)**:*** *If the preferred alternative is implemented, diversion from historic flows of the Fraser will near 80%, greatly increasing the economic, ecological, and aesthetic loss to Grand County residents and recreationists. The DEIS does not take these concerns seriously enough, in the opinion of many of my constituents. In fact the document barely notes the potential negative impact of diversion during wet years, and the loss of "flushing" flows. Particularly striking is the DEIS' contention that the "Moffat Project alternatives would have none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments (DEIS 5-46), "which may be true for some hypothetical stream at or near historic pristine conditions, but certainly not for streams near breaking points with 80% plus diversion. Such statements do not pass the "laugh test" with most of my West Slope constituents, and follow directly from the DEIS' decision to consider*

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		2006 conditions, as opposed to historic conditions, as its baseline. **Response #575-9:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While stream flows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line.

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		Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the ROW agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3.

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		The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. DEIS Section 3.1 presents information that demonstrates the hydrologic effects of upstream transbasin diversions and increased water use over time in the Upper Fraser River Basin and along the Colorado River mainstem at Windy Gap. DEIS Table 3.1-10 summarizes the effects of historical Moffat Collection System diversions on native flow at the Fraser River at Winter Park gage. On average, Denver Water diverted approximately 50% of the average annual native flow at the Fraser River at Winter Park gage for the 30-year period from 1975 through 2004. The percentage of native flow diverted by Denver Water depends on the location in the basin. Denver Water would divert over 90% of the native flow with the Moffat Project on-line from some small tributaries that do not have bypass flow requirements. Denver Water would divert about 76% of the native flow at the Winter Park gage with the Moffat Project on-line. At the Granby gage located near the mouth of the Fraser River, Denver Water's average annual Moffat Collection System diversions represent approximately 41% of the native flow. Tables showing the percentage of native flow diverted by Denver Water under Current Conditions, Full Use of the Existing System and the proposed Moffat Project flow were added to FEIS Appendix H. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing

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		systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. A discussion of the effects of flushing flows on aquatic resources was included in the DEIS and an expanded discussion is included in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #575-12*** *(ID 1029)**:*** *Also, the DEIS does not take into account the cumulative effect of both the Moffat Tunnel project and the Windy Gap Firming project in its section on "Cumulative Effects" (Chapter 5). Although the Windy Gap Firming Project is under the control of the Bureau of Reclamation and Northern Water District, both projects impact the Fraser River and the Colorado River. The Moffat Tunnel EIS process is not the first to do a poor job accounting for cumulative impact of concurrent or planned actions, and won't be the last, but given the precarious health of the Fraser (the 3rd most endangered river in the nation according to American Rivers) and Colorado (subject to an additional 9% flow decrease according to the DEIS (5-30», there is no room left for choosing convenient "baseline" conditions that minimize perceived impacts. We are at a stage when only the most cautious approach to base-lining impacts in an EIS process is consistent with NEPA's charge to "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man" (NEPA Preamble).* **Response #575-12:** The DEIS includes the Windy Gap Firming Project (WGFP) as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis

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		evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: “The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the Colorado-Big Thompson (C-BT) Project, and the Windy Gap Project.” Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Comment #575-10*** *(ID 1030)**:*** *Summit County constituents share Grand County's concerns regarding the DEIS and its potential impacts in Summit County, especially on the Blue River. They feel the document has serious flaws and that reasonable alternatives were not provided. May through September is a critical recreation period on the Blue River and the DEIS does not address seasonal and daily impacts of the project, even though it does remark that recreational impacts on streams can be "major (DEIS 5-49)," without further comment. There are currently five commercial rafting companies that run operations on the Blue River during these months. Decreased flows on the Blue River would cause serious economic impacts to*

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		these companies and the people they employ. The DEIS also does not address concerns regarding decreased water levels in Dillon Reservoir, which may lead to increased costs for the Town of Dillon to operate their marina. Lower reservoir levels also increase the amount of dust in the environment, an impact not addressed at all in the DEIS. Finally, the DEIS fails to consider the ongoing issues and the cumulative impacts for the entire River Basin. **Response #575-10:** The analysis was based on the most current information available at the time the DEIS was prepared in identifying minimum boating flows. In DEIS Section 3.13, the days for minimum and optimum flows were determined from several sources including the Upper Colorado River Basin Study (UPCO), American Whitewater, and personal interviews with commercial raft guides and private kayakers. The analysis examined daily flows over the course of the full 45 years of record. This same analysis was repeated in the FEIS but was revised to compare Current Conditions (2006) to Full Use with a Project Alternative (2032) using daily flows over the full 45 years of record. New information in the Grand County Stream Management Plan (GCSMP) indicates a minimum flow of 400 cfs for the section between Dillon Reservoir and Green Mountain Reservoir. As such, the analysis was adjusted to reflect this range of flows. An analysis on the section of the Blue River below Green Mountain Reservoir to the confluence with the Colorado River is included in FEIS Section 5.15. ***Comment #575-21*** *(ID 1031)**:*** *There are several ways in which the permit for the Moffat project, if issued, could successfully address these various issues. Most important are two concepts: First, a commitment to abide by Grand County's Stream Management Plan.*

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		Response #575-21: The GCSMP has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following resources: water quality (Sections 3.2 and 4.6.2), geomorphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), Physical Habitat Simulation (PHABSIM) data for analysis of aquatic biological resources (Sections 3.11, 4.6.11 and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15). Appropriate conceptual mitigation components were incorporated into the FEIS (see Appendix M) and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required, including Adaptive Management for mitigation. ***Comment #575-20*** *(ID 1032)**:*** *Second, a condition of permitting that would implement adaptive management for the diversion plan. Adaptive management is a concept whereby extensive monitoring is done under all conditions (wet and dry years) and triggers are set for certain indicators beyond which diversions would be cut off. Stream temperature, sufficient flushing flows, and other criteria can be set in consultation with agency and outside ecologists and biologists. I won't attempt to recommend the specifics of those kinds of arrangements here, but I will be keenly interested in whether they are in place before the end of the EIS process before I can support the project.* **Response #575-20:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required.

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		Comment #575-16 *(ID 1033)**:*** *In conclusion, I would like to reiterate my appreciation for the extra time given for commenters to digest the analysis contained in the DEIS. But I would also like to reiterate my concern on several levels with the status of the project. First, the DEIS is confusing, and contains numerous instances of poor or unclear logic, or faulty (or at least undocumented) assumptions. This is troubling both on grounds of the immediate impending decision and for future NEPA actions. Second, the DEIS fails to account for existing conditions and dynamics on a range of topics: From the already severely depleted health of the Fraser, Colorado, and other rivers affected by the action alternatives, to the recent success and future potential of water conservation on the Front Range. In the end, I am worried that the Moffat Tunnel project, if permitted and constructed as currently constituted, would have the effect of placing another bunch of straws on the proverbial camel's back, and would do so under conditions of "need" that are less than persuasive. Under these conditions, an EIS process must be especially careful not to cherry pick baselines and assumptions that tend to minimize potential impacts. And that is the essence of my concern.* **Response #575-16:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable future projects [RFFAs]) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032).

Comment-Response Report (Federal)

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Comment #738 Glenn P. Casamassa, Forest Supervisor United States Department of Agriculture, Forest Service, Arapaho and Roosevelt National Forests and Pawnee National Grassland 2150 Centre Avenue, Building E Fort Collins, CO 80526	From: Debra_Schofield/R2/USDAFS [mailto:Debra_Schofield/R2/USDAFS] On Behalf Of Debra Schofield Sent: Tuesday, March 16, 2010 4:30 PM To: MOFFAT.EIS@usace.army.mil; moffatproject@denverwater.org; Travis.Bray@denverwater.org; Franklin, J Scott NWO; Robert H Deibel; lois.witte@ogc.usda.gov; Randy Karstaedt; Oscar Martinez; jcoil@fs.fed.us Cc: Debra Ryon; Glenn Casamassa; Jacqueline Parks; Jerry K Bird; Mike D Johnson Subject: 1950-4; Comments on DEIS Gross, ACOE The following Correspondence is archived in the Records database. Any enclosures will follow the letter in this message. To open this document in the Records database, click on this link ->Link <Notes://ENTR2B/8725769A0077965B/BDEDFCA988B2DB3C85256207004F45A9/8725769A007E3F2B872576E4005F526E> To access all documents in the National Records Database, click on this link ->Link <Notes://ENTR2B/8725769A0077965B> - Enclosure1_GeneralCommentsDEIS.doc - Enclosure2_SpecificCommentsDEIS.doc - Enclosure3_CommentsDLAA.doc - Enclosure5_StudyRequestDocument_032010.doc - Enclosure4_StudyRequestComments_3-12-10.doc - FS_correspondence.doc	***Comment #738-33*** *(ID 3531)**:*** *The United States Forest Service (Forest Service) appreciates the opportunity to review and comment on the US Army Corps of Engineers (COE) Draft Environmental Impact Statement (DEIS) for the proposed Moffat Collection System Project (Project). This project is proposed by the City of Denver through its Board of Water Commissioners, Denver Water (DW). The Forest Service is very interested in the analysis for the Project as the majority of the potential impacts from the Project would occur on National Forest System (NFS) land. The scope of the proposed Project affects Forest Service administered resources on four national forests within the Rocky Mountain Region: (1) Arapaho National Forest (west side of the Continental Divide, location of the northern Moffat Collection System); (2) Roosevelt National Forest (east side of the Continental Divide, location of Gross Reservoir); (3) White River National Forest (location of several southern Moffat Collection facilities and the Blue River); and (4) the Pike National Forest (location of several southern Moffat Collection facilities and the South Platte River). The proposed action includes enlarging the dam at Gross Reservoir to increase the height of the dam by 125 feet (to a total of 465 feet), increase the reservoir surface area by 400 acres (to a total of 818 acres), and results in an additional 72,000 acre-feet of storage. The proposed action diverts additional water from 35 streams west of the Continental Divide and transfers these flows via the Moffat Tunnel and South Boulder Creek to Gross Reservoir. Gross Reservoir and its facilities are located on lands withdrawn under the Federal Power Act and the project is currently licensed (P-2035), which means that the Project will require an amendment to the existing FERC license.*

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	Attachments: United States Department of Agriculture Forest Service Arapaho and Roosevelt National Forests and Pawnee National Grassland 2150 Centre Avenue, Building F Fort Collins, CO 80526-8119 Voice: (970) 295-6600 TDD: (970) 295-6794 Web: www.fs.fed.us/r2/arnf Fax: (970) 295-6696 File Code: 1950-4 Date: March 16, 2010 Scott Franklin Moffat EIS Project Manager US Army Corp of Engineers Corps Denver Regulatory Office 9307 S. Wadsworth Blvd Littleton, CO 80128 Dear Mr. Franklin: The United States Forest Service (Forest Service) appreciates the opportunity to review and comment on the US Army Corps of Engineers (COE) Draft Environmental Impact Statement (DEIS) for the proposed Moffat Collection System Project (Project). This project is proposed by the City of Denver through its Board of Water Commissioners, Denver Water (DW). The Forest Service is very interested in the analysis for the Project as the majority of the potential impacts from the Project would occur on National Forest System (NFS) land. The scope of the proposed Project affects Forest Service administered resources on four national forests within the Rocky Mountain Region: (1) Arapaho National Forest (west side of the Continental Divide, location of the northern Moffat Collection System), (2) Roosevelt National Forest (east side of the Continental Divide, location of Gross Reservoir); (3) White River National Forest (location of several southern Moffat Collection facilities and the Blue River); and (4) the Pike National Forest (location of several southern Moffat Collection facilities and the South Platte River). The proposed action includes enlarging the dam at Gross Reservoir to increase the height of the dam by 125 feet (to a total of 465 feet), increase the reservoir surface area by 400 acres (to a total of 818 acres), and results in an additional 72,000 acre-feet of storage. The proposed action diverts additional water from 35 streams west of the Continental Divide and transfers these flows via the Moffat Tunnel and South Boulder Creek to Gross Reservoir. Gross Reservoir and its facilities are located on lands withdrawn under the Federal Power Act and the project is currently licensed (P-2035), which means that the Project will require an amendment to the existing FERC license. The Forest Service has participated as a stakeholder in the process leading up to issuance of both the COE DEIS and the related Draft License Amendment Application (DLAA), submitted simultaneously by DW to the FERC. The Forest Service respectfully submits general and specific comments to the DEIS as Enclosures 1 and 2 to this letter. The comments herein are applicable to both documents, because the DLAA cites and incorporates most of the DEIS by reference. To follow the procedure required by DW for review and comment on the DLAA, the Forest Service will also send all comments to that document (Enclosure 3) under separate cover letter to DW. Additionally, all of these comments will be directed to the FERC under separate cover, because: (1) the FERC is a cooperating agency on the DEIS; (2) the FERC is responsible for making the final decision on the DW license amendment for P-2035; and (3) the FERC has Caring for the Land and Serving People Printed on Recycled Paper	*The Forest Service has participated as a stakeholder in the process leading up to issuance of both the COE DEIS and the related Draft License Amendment Application (DLAA), submitted simultaneously by DW to the FERC. The Forest Service respectfully submits general and specific comments to the DEIS as Enclosures 1 and 2 to this letter. The comments herein are applicable to both documents, because the DLAA cites and incorporates most of the DEIS by reference. To follow the procedure required by DW for review and comment on the DLAA, the Forest Service will also send all comments to that document (Enclosure 3) under separate cover letter to DW. Additionally, all of these comments will be directed to the FERC under separate cover, because: (1) the FERC is a cooperating agency on the DEIS; (2) the FERC is responsible for making the final decision on the DW license amendment for P-2035; and (3) the FERC has also made determinations about required studies requested to supplement the environmental analysis supporting both actions. The Forest Service has determined that the DEIS and the DLAA are inadequate and deficient in addressing the effects to resources on NFS lands. The previously filed study requests by the Forest Service remain valid as a means to supplement the record to determine the effects of the Project to NFS-administered resources and to develop commensurate mitigation. DW refused to complete a suite of study requests submitted by the Forest Service, stating that the studies were not part of the FERC license amendment process and that the COE DEIS would provide site-specific analysis sufficient to address all of the requested studies. The FERC concurred with DW and determined, in less than one month after publication, that the COE DEIS analysis provided the necessary information (FERC letter to DW and the Forest Service, November 30, 2009).*

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	also made determinations about required studies requested to supplement the environmental analysis supporting both actions. The Forest Service has determined that the DEIS and the DLAA are inadequate and deficient in addressing the effects to resources on NFS lands. The previously filed study requests by the Forest Service remain valid as a means to supplement the record to determine the effects of the Project to NFS-administered resources and to develop commensurate mitigation. DW refused to complete a suite of study requests submitted by the Forest Service, stating that the studies were not part of the FERC license amendment process and that the COE DEIS would provide site-specific analysis sufficient to address all of the requested studies. The FERC concurred with DW and determined, in less than one month after publication, that the COE DEIS analysis provided the necessary information (FERC letter to DW and the Forest Service, November 30, 2009). The Forest Service respectfully requests that DW, the COE, and the FERC recognize the validity of the study requests and the need for these studies for proper disclosure of environmental effects. Although the Forest Service is providing summary comments on the study determination as Enclosure 4, consider our extensive comments, as included in all enclosures, part of the record for these proceedings. Based on an extensive review of the DEIS and the DLAA, the Forest Service has determined that neither document adequately discloses effects to NFS land and resources. Consequently, in order to develop the information needed to determine Project effects to NFS administered resources, we are resubmitting our revised study requests as Enclosure 5. Gross Reservoir and the facilities that support project operations are located on NFS land, which the Forest Service manages on behalf of the people of the United States. As the responsible land management agency, the Forest Service has authority under Section 4(e) of the Federal Power Act (FPA) to impose mandatory conditions in the FERC license necessary to mitigate the effects to NFS lands and resources that are directly attributable to Project operations and maintenance. Direct effects occur on both sides of the Continental Divide and the Forest Service will assert 4(e) authority on all aspects of the Project. Contrary to the past and current opinions of DW and the FERC, the Forest Service believes that the west-side diversions are a necessary and integral component supporting the operations and power generation for P-2035. The current operations of P-2035 and proposed future operations following reservoir expansion result in direct, indirect, and cumulative effects to NFS land and resources on both sides of the Continental Divide. The west side diversions substantially contribute to the current reservoir storage, provide virtually the only contribution to the increased reservoir storage, and thus are directly connected to a substantial projected increase in power generation at P-2035. DW estimates that the net increase in power generation is 16.5% (Table B-2, and text, Page B-5, DLAA). Thus, the west-side infrastructure, including all diversions, ditches, pipelines, tunnels, etc., is essential to the operation of P-2035, which occupies land withdrawn under the FPA for hydropower purposes. Additionally, the Forest Service has the authority under the Federal Land Policy and Management Act (FLPMA, 1976, as amended) to require a special use permit for use and occupancy of NFS lands on behalf of the people of the United States. We will reserve that authority through our 4(e) conditions.	*The Forest Service respectfully requests that DW, the COE, and the FERC recognize the validity of the study requests and the need for these studies for proper disclosure of environmental effects. Although the Forest Service is providing summary comments on the study determination as Enclosure 4, consider our extensive comments, as included in all enclosures, part of the record for these proceedings. Based on an extensive review of the DEIS and the DLAA, the Forest Service has determined that neither document adequately discloses effects to NFS land and resources. Consequently, in order to develop the information needed to determine Project effects to NFS administered resources, we are resubmitting our revised study requests as Enclosure 5. Gross Reservoir and the facilities that support project operations are located on NFS land, which the Forest Service manages on behalf of the people of the United States. As the responsible land management agency, the Forest Service has authority under Section 4(e) of the Federal Power Act (FPA) to impose mandatory conditions in the FERC license necessary to mitigate the effects to NFS lands and resources that are directly attributable to Project operations and maintenance. Direct effects occur on both sides of the Continental Divide and the Forest Service will assert 4(e) authority on all aspects of the Project.* **Response #738-33:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #738-54*** *(ID 3530)**:*** *Contrary to the past and current opinions of DW and the FERC, the Forest Service believes that the west-side diversions are a necessary and integral component supporting the operations and power generation for P-2035. The current operations of*

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	The following list highlights our key concerns with the DEIS and the DLAA: 1. The level of detail in the DEIS and DLAA is insufficient to determine effects of the proposed reservoir expansion on NFS land and resources east and west of the Continental Divide and should not be accepted by the FERC as adequate to make a decision about the merits of the proposed Project. 2. The DLAA incorporates the DEIS by reference. The DEIS discusses compliance with the Arapaho and Roosevelt NF and Pawnee (ARP) National Grassland Land Management Plan in the discussion on Visual Resources. However, there is no discussion in the remainder of the document concerning compliance with other resource standards, guidelines, and objectives of the ARP Forest Plan, nor is there any mention of compliance with the Forest Plans for the White River NF and Pike San Isabel NF Comanche and Cimarron NG. This omission includes, but is not limited to federally listed species under the Endangered Species Act, fisheries and aquatic resources, wildlife resources, heritage and cultural resources, recreation, etc. 3. The DLAA, which incorporates the DEIS by reference, does not meet FERC licensing regulations at 18 CFR §4.41 because does not provide a relevant summary or synthesis of resource data and effects, nor is this information available in the DEIS. 4. The DEIS and DLAA have little or no discussion and analysis of Forest Service sensitive species and Management Indicator Species. 5. Comparisons and changes for the alternatives are impossible to make for many resources because baseline reference points change throughout the document. 6. The analysis in the DEIS is inadequate and needs supplementation so the Forest Service believes it is not ready to go to a Final EIS. If you have any questions concerning the attached comments please contact Mike Johnson, Project Leader, at (303) 541-2534. Sincerely, */s/ Thomas A. Ford (for)* GLENN P. CASAMASSA Forest Supervisor Enclosures	*P-2035 and proposed future operations following reservoir expansion result in direct, indirect, and cumulative effects to NFS land and resources on both sides of the Continental Divide. The west side diversions substantially contribute to the current reservoir storage, provide virtually the only contribution to the increased reservoir storage, and thus are directly connected to a substantial projected increase in power generation at P-2035. DW estimates that the net increase in power generation is 16.5% (Table B-2, and text, Page B-5, DLAA). Thus, the west-side infrastructure, including all diversions, ditches, pipelines, tunnels, etc., is essential to the operation of P-2035, which occupies land withdrawn under the FPA for hydropower purposes. Additionally, the Forest Service has the authority under the Federal Land Policy and Management Act (FLPMA, 1976, as amended) to require a special use permit for use and occupancy of NFS lands on behalf of the people of the United States. We will reserve that authority through our 4(e) conditions.* **Response #738-54:** The Moffat Collection System draws water from the West Slope, transports it to the East Slope via the Moffat Tunnel, and stores it in Gross Reservoir before delivering it to raw water users and the Moffat Treatment Plant. The Gross Reservoir Hydroelectric Project (Federal Energy Regulatory Commission [FERC] 2035) generates electricity using releases from Gross Reservoir during operations for water supply purposes. For purposes of the hydropower license, what constitutes a “project” and a “unit of development” under the authority of FERC does not necessarily include all intake structures that convey water from a wide network of streams for storage in Gross Reservoir. FERC has concluded that “the features of Denver’s municipal water supply system upstream of Gross Reservoir are not part of the

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	Enclosure 1 **US Forest Service General Comments** **Moffat Collection System Project, Draft Environmental Impact Statement** **US Army Corps of Engineers** **March 2010** Enclosed are the general comments of the US Forest Service (USFS) for the proposed Moffat Collection System Project (Project). The US Army Corps of Engineers (ACOE), on behalf of Denver Water (DW), presented their analysis in a Draft Environmental Impact Statement (DEIS), published in October 2009. **General Comments, Draft Environmental Impact Statement (DEIS)** The US Army Corps of Engineers (Corps) website proved frustrating in that it was often not possible to access the DEIS documents. The Full Use Existing System (Full Use) is stated to include "new projects, changes in existing projects and operations, increases in demand levels, and administrative changes that are anticipated to occur between now and the year 2016." Although the DEIS only provides summary data, it is clear that the Full Use flows would have significant adverse effects to the aquatic resources of the North Fork of the South Platte River and mainstem of the South Platte River. The Forest Service is requesting clarification from the Corps about how agency concerns related to the Full Use scenario will be addressed in this process. The DEIS typically provides only general statements regarding project effects to stream flow. Lacking more specific information, it is not possible for the US Forest Service (USFS) to determine site-specific deleterious effects. For example, under the proposed alternative, is it reasonable to expect overbank flows on the North Fork of the South Platte River, and if so, when might these occur and how frequently? Would they occur in potential and occupied Preble's jumping mouse habitat located along the North Fork? Should we anticipate rapid daily flow changes, and if so, what is the expected duration and timing of these flows? Will there be bank sloughing resulting from rapid daily flow changes, and what will the consequences be for aquatic, terrestrial and cultural resources? Will planned flow fluctuations result in fish stranding or scouring of trout fry in affected habitats? The DEIS states: "Although Denver Water's operations affect flows along the South Platte River from Antero Reservoir downstream to the Henderson gage, average annual and monthly flow changes would be less than 10% in almost all months of the 45-year study period. Therefore, the South Platte River was not included as a focus river segment." Because the South Platte was not included as a focus segment, the DEIS neither addressed nor described potential impacts, particularly in reference to tailwater fisheries in these stream sections. Page 1 of 9	Project's unit of development and therefore will not be placed under the license." [Order Issuing New License. 94 FERC 61,313 (March 16, 2001)]. The operation of the water supply system, including West Slope infrastructure, diversions, ditches, pipelines, tunnels, etc., is analyzed in the EIS for its direct, indirect, and cumulative impacts to resources on both sides of the Continental Divide. ***Comment #738-2*** *(ID 3529)**:*** *The following list highlights our key concerns with the DEIS and the DLAA: The level of detail in the DEIS and DLAA is insufficient to determine effects of the proposed reservoir expansion on NFS land and resources east and west of the Continental Divide and should not be accepted by the FERC as adequate to make a decision about the merits of the proposed Project.* **Response #738-2:** Please see the response to Comment ID 3524. ***Comment #738-53*** *(ID 3528)**:*** *The DLAA incorporates the DEIS by reference. The DEIS discusses compliance with the Arapaho and Roosevelt NF and Pawnee (ARP) National Grassland Land Management Plan in the discussion on Visual Resources. However, there is no discussion in the remainder of the document concerning compliance with other resource standards, guidelines, and objectives of the ARP Forest Plan, nor is there any mention of compliance with the Forest Plans for the White River NF and Pike San Isabel NF Comanche and Cimarron NG. This omission includes, but is not limited to federally listed species under the Endangered Species Act, fisheries and aquatic resources, wildlife resources, heritage and cultural resources, recreation, etc.*

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 **Aquatic Invasive Species** We found no information regarding the presence of aquatic nuisance species which are present in the DW system. For example, the document should have disclosed the risk and described potential measures to avert the transportation of zebra mussels from Dillon Reservoir to the North Fork of the South Platte River and downstream reservoirs. **Aquatics** Forest Service General Issues with the Aquatic Biological Resource Report-PHABSIM analysis: 1. It is uncertain if IFIM meant PHABSIM in the analysis. IFIM is Instream Flow Incremental Methodology, a description of a *process*, whereas PHABSIM is a Physical Habitat Simulation Model, a quantitative model that provides comparable results for habitat area produced for different fish life stages over a continuous range of flows. Please clarify. 2. The analysis does not address any of the USFS study requests. The studies requested were necessary to provide information to help analyze project effects and eventually develop mitigation. These requests were dismissed by both DW and the FERC with the expectation that the DEIS would provide the requested information. After reviewing the DEIS, it is obvious that USFS interests were not addressed and that the data gaps described in the original study requests still exist. 3. The USFS has technical concerns with the PHABSIM modeling. For example; uncertainty exists about the habitats represented by modeling, too large a time step was used in the analysis to allow for adequate estimation of effects, and the results on a large stream system mask the effects on the smaller systems, the focus of our study requests. 4. The DEIS did not model the effects of alternatives on habitat for native cutthroat trout. This important species should have been included in the analysis. 5. The use of mean annual flow in the analysis masks the effects of the alternatives because the time step is too large 6. The Corps has direction from the US Fish and Wildlife Service (FWS) to assess the effects of actions on Lineage Greenback (GB) fish outside their historic range. Although several streams in the project area contain Lineage GB fish, the DEIS neither analyzed nor disclosed effects of the Denver Water operation on those populations. In addition to the exclusion of greenback cutthroat trout, the DEIS also failed to analyze several USFS aquatic special-status species that will be affected by increased diversions from the Fraser River basin. 7. The USFS is unable to assess the effects of proposed changes in flow or the frequency of dewatering on affected stream reaches because the DEIS provides insufficient data on the individual tributary streams. The DEIS masks the effects of the proposed action on flow changes and potential increases in the frequency of dewatering on individual tributary streams by focusing primarily effects to mainstem reaches. 8. The DEIS contains no discussion on how changes in diversion operations and increased volumes of water would affect individual fish. The DW system does entrain fish, yet the DEIS states in multiple locations: "Flow changes would have negligible or minor effects on habitat for special status aquatic species. Changes would occur downstream of Colorado River cutthroat trout occupied habitat." The Forest Service questions the accuracy of this conclusion because some of the diversion structures are located within occupied habitat, Page 2 of 9	**Response #738-53:** The Moffat Project potentially affects national forest lands in four national forests: (1) Arapaho National Forest (portions of the Moffat Collection System on the West Slope), (2) White River National Forest (Dillon Reservoir area on the West Slope), (3) Roosevelt National Forest (Gross Reservoir on the East Slope), and (4) Pike-San Isabel National Forest (portions of the South Platte Collection System on the East Slope). The Corps evaluated consistency with the USFS Forest Plans where there were proposed ground-disturbing activities (refer to FEIS Section 5.16). The Corps assumes the USFS will perform its own detailed review of consistency with Forest Plan goals, objectives, standards and guidelines. With respect to the Draft License Amendment Application, it is Denver Water's responsibility to evaluate consistency with the Forest Plans. Please refer to Denver Water's Final License Amendment Application. ***Comment #738-52*** *(ID 3527)**:*** *The DLAA, which incorporates the DEIS by reference, does not meet FERC licensing regulations at 18 CFR §4.41 because does not provide a relevant summary or synthesis of resource data and effects, nor is this information available in the DEIS.* **Response #738-52:** FERC is a Cooperating Agency in the development of the EIS and has provided review and comment to the Corps during the development of the EIS. Upon receipt of a final application for license amendment from Denver Water, FERC determines whether Denver Water's application satisfies the regulatory requirements for a license amendment.

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 resulting in direct effects due to entrainment and the diversion of water on special status aquatic species. **Hydrology** **A. Selection of Sampling Sites** The sampling sites selected do not represent the range of channel types in the Fraser River and Williams Fork River basins. It appears that the sampling sites were only selected if the channel was in good condition and stable within a given channel type (i.e., unstable channels were not sampled). In addition, the sampling sites selected are skewed toward Rosgen A and B channel types, which are less likely to be sensitive to morphological changes from existing and proposed flow alterations. For example, 48 percent of the St. Louis Creek drainage consists of a Rosgen C channel type (response reach) and yet the sampling site selected was in a Rosgen B channel type (transport reach). Because more sensitive reaches (i.e., pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. Selecting only one sampling site on a limited number diversion sites does not reflect the range of channel responses that may occur along a channel. The accuracy of extrapolating channel responses from the results of a single sampling site to other locations along the channel or other channels is questionable. At a minimum, multiple sampling sites should have been selected for each channel type along the focus river segment to better understand the range of existing conditions and potential responses to the proposed action. Sampling site locations should have been determined randomly within a given channel type to minimize operator bias when selecting sampling sites. The DEIS does not include a sampling site on Vasquez Creek downstream of Gumlick Tunnel where flows are projected to increase by 20% through the tunnel with the addition of water diverted from the Williams Fork drainage. This proposed increase in flows could potentially affect channel stability, channel morphology, and aquatic habitat along Vasquez Creek between the Gumlick Tunnel outflow and the Denver Water Board diversion structure. This creek should be sampled and the information made available in the FEIS. **B. Hydraulic Capacity and Operation of Diversion Structures** The dimensions, hydraulic capacity, and operational history of each diversion structure needs to be provided in order to evaluate the impacts of the existing diversion structures on fluvial processes and channel morphology from the 1) natural flow and sediment regime and 2) proposed changes to the operation of each diversion structure. The FEIS should show: the annual and maximum annual volume of water diverted by the diversion structure in a given year: the annual and annual maximum peak discharge diverted by the diversion structure; the maximum discharge capacity of the diversion structure; how the diversion structure discharge capacity compares to the flow remaining in the channel; whether the diversion structure span the channel; how the diversion structure affects the transport of sediment to the downstream channel. Page 3 of 9	***Comment #738-51*** *(ID 3526)**:*** *The DEIS and DLAA have little or no discussion and analysis of Forest Service sensitive species and Management Indicator Species.* **Response #738-51:** The USFS was contacted during preparation of the DEIS for the current special status species list (DEIS Table 3.7-3 and Appendix G). DEIS analysis focused on listed species and species potentially affected by the Project. More analysis has been added to FEIS Sections 3.10, 5.10, and Appendix G for USFS sensitive species and Management Indicator Species (MIS). A detailed analysis, including reference to conservation assessments and other current literature, is provided in a new Special Status Species Technical Report (Appendix G). Sensitive species surveys were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the USFS Arapaho & Roosevelt National Forests (ARNF) botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in the Special Status Species sections of the FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in the Special Status Species Technical Report. ***Comment #738-50*** *(ID 3525)**:*** *Comparisons and changes for the alternatives are impossible to make for many resources because baseline reference points change throughout the document.* **Response #738-50:** Baseline reference points did not change in the DEIS, however, to clarify the total environmental effects anticipated to occur, the impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 **C. Transport Capacity, Sediment Supply, and Effective Discharge** The relationship between transport capacity and sediment supply are poorly described. The premise that the morphology of channel will not change because transport capacity is considerably greater than sediment supply from the proposed flow changes is incorrect. Existing channel morphology reflects that it is in balance or in dynamic equilibrium with the current flow and sediment regime. Just because transport capacity remains greater than sediment supply when peak flows are reduced during average and wet years does not necessarily indicate morphological channel changes will be minimal due to implementation of the proposed action. Reducing the frequency of effective discharge and annual transport capacity will decouple the sediment transport conveyor belt by eliminating or reducing Phase 2 sediment transport, which is critical for creating and maintaining channel form. The proposed action may eliminate frequent, moderate flood events in, which are generally considered to determine channel dimensions and form. This can cause pools to become shallower as they fill with sediment and cause the channel to gradually narrow as riparian vegetation becomes established along the channel margins. This effect will be more apparent and likely in low gradient, unconfined channels. As a result, larger, more infrequent, floods during higher water years may be unable to remove the established vegetation. At several of the sampling sites sand deposition was observed and considered an indicator of potential aggradation (see sampling site descriptions in section 3.1.6.1 and 3.1.6.2). The proposed reduction in peak flows during average and wet water years will exacerbate sand/fine gravel deposition and channel aggradation. The study design used to assess the impacts of changes in sediment transport capacity on channel morphology is not well described in the DEIS. The USFS has the following concerns with the analyses and interpretations: 1. Use of the sediment supply estimates from the Two Forks EIS is not supportable (Simons and Associates, 1986). If the sediment supply equations from the Two Forks EIS are to be used in this EIS, the relevant assumptions, channel geometry, sediment transport data, and results from that study should be provided. Without this information, a reader cannot objectively evaluate how the sediment supply data and results from the Two Forks EIS apply to this study or if the sediment supply equations from the Two Forks EIS drawn were appropriately applied. 2. It is important from a channel morphology perspective to show how the mobilization of D50 and greater size particles are effected by flow alterations (Phase 2 sediment transport). Reducing the frequency of Phase 2 sediment transport could have an adverse effect on channel morphology. 3. Transport capacity needs to be assessed at discrete particle size intervals. No data were provided for the transport capacity of discrete particle size intervals at different flows (total load only presented). 4. The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, mountain channels composed of gravels, cobbles, and boulders. Channel beds are considerably coarser and steeper than the studies used to develop the equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate. Page 4 of 9	(2006) and Full Use with a Project Alternative (2032). Please see the response to Comment ID 3521. ***Comment #738-49*** *(ID 3524)**:*** *The analysis in the DEIS is inadequate and needs supplementation so the Forest Service believes it is not ready to go to a Final EIS.* **Response #738-49:** Per 40 CFR 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a Supplemental Draft document was not prepared for the Moffat Project. As a result of comments received on the DEIS, new analyses were conducted for the following resources in the FEIS: water quality (FEIS Section 5.2), groundwater (FEIS Section 5.4), aquatic biological resources (FEIS Section 5.11), wetland and riparian areas (FEIS Section 5.8), wildlife (FEIS Section 5.9), sensitive species (FEIS Section 5.10), air quality (FEIS Section 5.13), and socioeconomics (FEIS Section 5.19). Additionally, numerous surveys were conducted for the FEIS for USFS sensitive species at Gross Reservoir and in the Fraser and Williams Fork Valley (FEIS Section 5.10 and Appendix G). ***Comment #738-48*** *(ID 3523)**:*** *Enclosed are the general comments of the US Forest Service (USFS) for the proposed Moffat Collection System Project (Project). The US Army Corps of Engineers (ACOE), on behalf of Denver Water (DW), presented their analysis in a Draft Environmental Impact Statement (DEIS), published in October 2009.*

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 5. Field data were not collected to "calibrate" the quantity and size of bedload being transported at different discharges. 6. Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an appropriate bedload transport equation is used. Results from such studies should be used with caution when predicting potential channel responses. **D. Assumptions Used to Model Flow Hydraulics and Transport Capacity in HEC-RAS** The assumptions used to model flow hydraulics and transport capacity using HEC-RAS were not presented and the general limitations of using HEC-RAS to model flows and transport capacity in steep, forested, mountainous channels were not discussed. In addition, the limitations of using flow hydraulics and transport capacity output from HEC-RAS to assess channel impacts and responses to flow alteration were not discussed. Sediment sampling data should be used to calibrate sediment transport equations. Whenever possible, the use of measured sediment loads for testing and calibration of the equations is preferred to modeling exercises. Additionally, because pebble counts tend to be biased towards larger particle sizes and underestimate the presence of smaller size fractions in the channel bed, the lack of collecting subsurface data as was done in this study will further reduce the accuracy of sediment transport capacity estimates. **E. General Hydrology** Inappropriate baseline: The logic behind the selected baseline for effects analysis is unclear. The selected baseline minimizes the volume of diversions the effects analysis is based on. The baseline for effects analysis should be 2006 rather than projected full use in 2016 (difference in volume of diversions in the full use compared to proposed action scenario is only 3000 AF/year). The "Full use" concept is questionable based on the Forest's understanding of the conveyance limits in the Moffat collection system. Rather than simply asserting that Denver would maximize diversions, the EIS must provide an improved description of how full use would be achieved without additional storage to verify that the full use scenario is even possible. Demand forecast is unreasonable and the actual use of Moffat water is obscured: Demand projections are inaccurate when compared to actual use in period between 2000 and 2003. From the description of the Moffat WTP as "primarily a peaking plant", it appears as if the projected supply shortfall is mostly due to hypothesized demand for outdoor irrigation water. Furthermore, portions of the perceived supply shortfall appear to be self imposed by DW such as the recent selling of 3000 AF/year of water to Arvada (in exchange for real estate to build a reservoir on), contingent on success of this proposal. The effects analysis of sediment transport and channel morphology impacts is incorrect: This analysis must include consideration of Phase II bedload transport rather than simply accounting for bed surface fines. Phase II transport involves the partial mobilization of the bed material and is a critical component of channel maintenance (Schmidt and Potyondy, 2004). Moreover, the bed material characterizations used a method that was incorrectly applied. Estimates of a channel's available sediment need to consider subsurface materials which a pebble count would not reveal. Results and conclusions are also based on incorrect interpretations of information Page 5 of 9	**Response #738-48:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #738-47*** *(ID 3522)**:*** *The US Army Corps of Engineers (Corps) website proved frustrating in that it was often not possible to access the DEIS documents.* **Response #738-47:** The Corps' website is part of a U.S. Army website that contains special security measures, one of which is a Security Warning. The Corps communicated to commenters that it was safe to continue through the warning. ***Comment #738-46*** *(ID 3521)**:*** *The Full Use Existing System (Full Use) is stated to include "new projects, changes in existing projects and operations, increases in demand levels, and administrative changes that are anticipated to occur between now and the year 2016." Although the DEIS only provides summary data, it is clear that the Full Use flows would have significant adverse effects to the aquatic resources of the North Fork of the South Platte River and mainstem of the South Platte River. The Forest Service is requesting clarification from the Corps about how agency concerns related to the Full Use scenario will be addressed in this process.* **Response #738-46:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios.

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 contained in published USFS research papers. The watershed sediment "supply" equations used are in fact sediment discharge equations and fail to characterize watershed sources of sediment. Mitigation: All agreements with other entities to mitigate the effects of the project,should be shared in the EIS in order for the effects to be assessed. The mitigations included in the DEIS, do not offset potential impacts and are not sufficient. For example, several of the affected channels on the west slope are proposed by the State for the 2010 303(d) listed (temperature impairment) streams. Water losses associated with an enlarged Gross reservoir area: Evaporative losses for an enlarged Gross reservoir appear to be erroneously low. Although there is a brief mention in the groundwater effects section, the document does not quantify changes in bank storage at an enlarged Gross reservoir and increased transmission losses in the project conveyance system. This information is needed to assess the efficiency of alternatives in terms of water use. Reduction in the number of days at or above effective discharge in affected streams is objectionable: Available research supports the importance of maintaining high flows in these steep, coarse grained stream channels. It appears that the planned flow diversions will siphon off the range of flows most critical to maintaining the form and functions of streams in these watersheds. There is a need to provide over the long term, the same average number of days of effective discharge as pre-diversion period to maintain channels. This means that during the "wet months of wet years", high flows must be provided in these channels rather than entirely diverted. The assertion that the remaining high flows can be diverted without affecting channel morphology counters published research results and is not supported by conditions in the field. See Grand County Stream management plan for recommended flow regimes as potential mitigation. This may become even more important in the future. In an atmosphere of changing climate and projected decreases in snowpack, the likelihood of wet years where the high flows are by-passed is further diminished. Changes in flood risk: Need information, preferably mapping on expanded flood zones below an enlarged Gross (in event of dam failure). Effects on Floodplains: The analysis of effects to floodplain/riparian vegetation on the west slope is insufficient. Explain how floodplains will get smaller due to either vegetation invasion due to dewatering or lack of flooding. For example, the floodplains are expected to be "smaller in area" when in fact they may disappear altogether since they would no longer be inundated in relatively frequent events (1.5 year RI) or greater than bankfull channels. Reducing the energy available for lateral migration will reduce the formation of new lateral accretion formed floodplains in C channels. Alternative effects on Hydrology: Supplemental environmental analysis should be conducted to compare the Project alternatives for temperature, sediment, nutrient and chemical impairment. This work should include modeling that evaluates changes in concentration throughout the system, accounting for water quantity decreases and increases from both diversions and tributaries. Page 6 of 9	• Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative. ***Comment #738-45*** *(ID 3520)**:*** *The DEIS typically provides only general statements regarding project effects to stream flow. Lacking*

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 Effects to Arapaho National Recreation Area reservoir water quality: The DEIS needs to include a discussion in the cumulative effects section regarding effects to water quality as weed/algae control and clarity (Grand Lake) are existing issues. Table 1-2 fails to mention other common means for extending the use of supplies such as wastewater recycling for domestic use. Arapaho Roosevelt, Pike and San Isabel, and White River Forest Plan direction: The Land and Resource Management Plans (aka Forest Plans) for the affected Forests are only mentioned in relation to Visual Resource Objectives. The DEIS is silent on any other Forest Plan requirements. The Moffat system and effects from the use of the Moffat system occur on public lands. Therefore, the DEIS must incorporate standards, geographic and management area direction and show how forest plan direction would or would not be met under the proposal. Cumulative Effects: The cumulative effects analysis is inadequate because it ignores the effects of Denver's existing diversions. Even though the cumulative effects chapter begins by defining cumulative effects as the "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" effects of the existing diversion system are not disclosed or analyzed. This is a major flaw because the existing diversion system is the major existing impact, and its effects are ongoing and widespread. Estimates of unregulated flow of diverted and augmented streams should be included in the analysis. Selection of field sites: The streams sites do not appear to be representative of streams diverted by Denver. For the Fraser basin, all sites selected either have bypass flows or are downstream of a confluence with streams that have bypass flows. This is not representative of the effects of Denver's diversion system. The Fraser diversion system diverts from 31 streams. Only 10 of the streams have bypass flow provisions. Each of the streams is fairly large, in the context of streams in the Fraser basin. The majority of diverted stream are much smaller. None of the sites are located immediately below diversions, where the effects of diversion are most pronounced. Further, no stream surveys compared conditions above and below diversions. Such a comparison would help to support or refute the conclusions that the project would have minimal cumulative effects. Average vs. firm yield: While the purpose and need is defined in terms of firm yield, the rest of the document discusses change in flow and diversion in terms of average yield. The concept of firm yield is probably not widely understood by the audience reviewing the EIS, and a discussion of the firm yield versus average yield would be helpful. **Recreation** 1. The Moffat Collection System Corps DEIS does not reference the Gross Reservoir Hydroelectric Project EA dated 2000. This document analyzed affects on Recreation and Visual Resources for the relicensing project at that time. 2. The Moffat Collection System DEIS does not specify recreation/visual resource actions as the 2000 EA did, nor does it adequately analyze affects to the extent necessary to properly comment. Page 7 of 9	*more specific information, it is not possible for the US Forest Service (USFS) to determine site-specific deleterious effects. For example, under the proposed alternative, is it reasonable to expect overbank flows on the North Fork of the South Platte River, and if so, when might these occur and how frequently? Would they occur in potential and occupied Preble's jumping mouse habitat located along the North Fork? Should we anticipate rapid daily flow changes, and if so, what is the expected duration and timing of these flows? Will there be bank sloughing resulting from rapid daily flow changes, and what will the consequences be for aquatic, terrestrial and cultural resources? Will planned flow fluctuations result in fish stranding or scouring of trout fry in affected habitats?* **Response #738-45:** The DEIS contains specific information on hydrologic effects throughout the affected Project area: • Appendix H-3 summarizes average monthly flows, diversions, and reservoir outflow for average, dry, and wet conditions. • Appendix H-4 includes average daily hydrographs for average, dry, and wet conditions. • Appendix H-5 includes flow duration curves. • Appendix H-6 presents the maximum daily flow change and the maximum percentage flow change, and the percentage of days that flow changes would occur. Section 4.1.1.2 under the North Fork South Platte River includes a detailed discussion of effects on stream flow due to the Proposed Action. Overbank flows may occur on the North Fork South Platte River, however, that would not be an effect caused by the Proposed Action. Denver Water regulates

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 **Wildlife / Weeds** 1. Outdated references: The DEIS sections reviewed appear to be outdated – for example, references to Colorado Division of Wildlife (CDOW) databases and verbal communication are dated 2005; references to Colorado Natural Heritage Program data are from 2005; and the USFWS Species List in Appendix G is from 2005. CDOW and CNHP data were updated in 2009; and the USFWS list was most recently updated in May 2009. Most of this information is available on the internet. CNHP data does not currently include any data for Proposed, Threatened, Endangered, Forest Service Sensitive, or rare/local concern plants on the Forest since 2000, including new or revised element occurrences for plants, so is nine years out of date. There are hundreds of plant records not posted to the CNHP database. The Forest Service is currently entering these data into a new release of the USFS NRIS TESP database, and once this is finished the data will be migrated all at once to the CNHP database. In the meantime, the ARP Forest botanist can provide data specific to this project. 2. Special Status Plants: Based on the best available data, in conflict with Forest Service policy, this project is likely to adversely affect population viability on the Planning Unit (ARP) for one FS Sensitive species and two rare/local concern species. The project may also affect viability on the ARP for two additional rare/local concern plant species. All five species were found in the vicinity of Gross Reservoir during surveys for the 2001 Denver Water FERC licensing. Of the five, only the FS Sensitive species is mentioned in the DEIS and that is only mentioned in a species list table. It is not mentioned in the body of the DEIS as occurring in the area, and effects are not analyzed. The remaining four species are not mentioned in the DEIS or appendices. Mitigations and salvage efforts are recommended under Sections 4.6.7.1 and 4.8.7; however it must be recognized that even with mitigation measures, values and species may not be comparable. Some rare plants that would be inundated probably cannot be found elsewhere and purchased or protected. 3. Fens: There is no discussion of surveys done to determine presence or absence of fens, or communication with any experts who might provide further information about known or likely fen occurrences in the project area. Furthermore, there is no analysis of impacts to fens, which are a conservation priority for the USFS and for the USFWS Mountain-Prairie Region, and are considered a Category 1 wetland by the USFWS. This is particularly important in the Williams Fork area, where fens are present (documented in the DEIS Chapter 3) at both river segment sample sites selected by the CORPS to represent effects to other project river segments. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology such as those proposed with this project. 4. Species lists: All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes Forest Service Sensitive species, Management Indicator species, and rare/local concern plants. 5. Special Status Species analysis: The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects to special status species other than three federally and/or state-listed animal species that are discussed individually. 6. Plant species analysis: There is no environmental baseline or analysis for any plant species except those federally listed plants potentially affected by water depletions,. The sections on vegetation discuss rare plant communities, but do not mention any individual plant species, Page 8 of 9	Roberts Tunnel diversions in an effort to keep the total flow in the North Fork South Platte River below 680 cfs at Grant and below 980 cfs above the confluence with the South Platte River mainstem (Design Criteria for Channel Stabilization of the North Fork South Platte River, Yevdjerick 1966 and Simons 1967). Under the Proposed Action, annual peak flows estimated for recurrence intervals of approximately 6 years and greater are all between 660 and 670 cfs. These annual flood flows reflect Roberts Tunnel delivering the maximum amount allowed by the channel capacity. Annual peak flows are virtually the same for both Full Use of the Existing System and the Proposed Action for all flood flows with an estimated recurrence interval of 2 years or more. During a major, rare flood event that exceeds channel capacity, Roberts Tunnel would likely be importing little to no water depending on flow conditions. There would be no increase in floodplain boundaries attributable to the proposed Moffat Project. Rapid daily flow changes are more often due to changes in natural flow such as rain fall events as opposed to deliveries via the Roberts Tunnel. Under the Proposed Action, rise and fall rates associated with daily flow changes in the North Fork South Platte River that are due to Roberts Tunnel deliveries are within the range of what occurs under Full Use of the Existing System. Changes in Roberts Tunnel deliveries of more than 100 cfs from one day to the next would occur approximately 10% of the time under both Full Use of the Existing System and the Proposed Action and approximately 6% of the time under Current Conditions. There would be minimal change in the frequency and magnitude of high rapid daily flow changes under the Proposed Action compared to Full Use of the Existing System. Increases in flow in the North Fork South Platte River under the Proposed Action during the summer

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	Enclosure 1. US Forest Service General Comments; Moffat Collection System Project; Draft Environmental Impact Statement; US Army Corps of Engineers; March 2010 even though "Impact of reservoir inundation on rare plants or communities" is listed as a primary issue under the vegetation section in Chapter 4. 7. Wildlife habitats and ARP Forest Plan: There is no discussion of important wildlife habitats relevant to the ARP Forest Plan, including old growth, effective habitat, interior forests, and corridors. There is no discussion about consistency with the Forest Plan regarding these habitats or other Forest Plan goals, objectives, standards, and guidelines that apply to wildlife, botany, and noxious weeds. Page 9 of 9	months and decreases in flow during winter months would result in an overall increase in annual sediment transport capacity. It is possible that the increase in transport capacity could lead to localized bed and bank erosion, however, additional bank sloughing resulting from rapid daily flow changes is not expected. Similarly there would be no additional fish stranding or scouring of trout fry expected since there would be little change in the frequency and magnitude of high rapid daily flow changes under the Proposed Action compared to Full Use of the Existing System. ***Comment #738-17*** *(ID 3519)**:*** *The DEIS states: "Although Denver Water's operations affect flows along the South Platte River from Antero Reservoir downstream to the Henderson gage, average annual and monthly flow changes would be less than 10% in almost all months of the 45-year study period. Therefore, the South Platte River was not included as a focus river segment." Because the South Platte was not included as a focus segment, the DEIS neither addressed nor described potential impacts, particularly in reference to tailwater fisheries in these stream sections.* **Response #738-17:** The purpose of identifying and screening stream segments with an average annual flow change of 10% was to focus the selection of sample sites, data collection and field work in areas that experience the greatest flow change. Because the study area covers several river basins, it was impractical to collect data on each individual sub-reach of every affected stream. Several representative river reaches, which experience the greatest flow change, were therefore identified for detailed data collection and evaluation. The approach was to select a variety of reaches that were examples of or statically

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	Enclosure 2 **US Forest Service Specific Comments** **Moffat Collection System Project, Draft Environmental Impact Statement** **US Army Corps of Engineers** **March 2010** Enclosed are the specific comments of the US Forest Service (USFS) for the proposed Moffat Collection System Project (Project). The US Army Corps of Engineers (ACOE), on behalf of Denver Water (DW), presented their analysis in a Draft Environmental Impact Statement (DEIS), published in October 2009. These comments are presented with citations to specific pages and sections of the DEIS. **Executive Summary** First paragraph, first sentence: "Two federally listed species, bald eagle and slender moonwort, have the potential to occur at Gross Reservoir but would not be impacted under any of the action alternatives." This statement is incorrect because the bald eagle was delisted in 2007, as acknowledged on p. 4-291 of the DEIS, and the slender moonwort has never been federally listed, although it was formerly a candidate for listing. In addition, slender moonwort is not mentioned in Chapter 3 or Chapter 4 of the DEIS; i.e., no baseline information is given and no effects analysis is presented. The Executive Summary should reflect the most recent information based on the biological opinion and be consistent with the DEIS. Page ES-17 and 18, Stream Flows: Item number 3 indicates that the average annual flows in the Colorado downstream from the Blue River would be reduced by 2300 acre-feet (AF) when comparing the proposed action to the no action alternative. It is not apparent how a total average annual increase in diversion of 2300 AF would meet the purpose and need of providing Denver with an additional 18,000 AF of firm yield. Even if the Blue River contributions to DW's south system are not accounted for, the sum of the differences in flow reductions between the proposed action and no action alternative for the Fraser and Williams Fork is 8000 AF, which still appears to be far less than the stated need for 18,000 AF of firm yield. It would appear that the sum of the differences in flow between the proposed action and no action alternative for the Fraser, Williams Fork and Blue River (the diverted basins) should be equal to the total differences in flow between the proposed action and no action alternative for the Colorado downstream of the Blue, but this is not the case. The first amount is 2600 AF while the second amount is 2300 AF. Further, it would appear that the sum of the differences between the proposed action and no action alternative for the Fraser and Williams Fork (flows diverted to the Moffat tunnel) should be equal to the differences for South Boulder Creek (the augmented stream), but they are not (8000 AF vs. 8100 AF). Item 1 indicates that for the proposed action, flows in the Williams Fork below Steelman Creek would decrease by 1910 AF, but that flows downstream in the Williams Fork below Williams Fork Reservoir would decrease by only 1700 AF. How can the decreases in flow downstream be	representative of different resource conditions encountered in the study area. As discussed in DEIS Section 4.9 and FEIS Section 5.11, there would be minimal changes in flow in the South Platte River associated with the Project. Thus, there likely would be no impact to the South Platte River in the tailwater sections and further discussion in the FEIS is not warranted. ***Comment #738-16*** *(ID 3518)**:*** *Aquatic Invasive Species We found no information regarding the presence of aquatic nuisance species which are present in the DW system. For example, the document should have disclosed the risk and described potential measures to avert the transportation of zebra mussels from Dillon Reservoir to the North Fork of the South Platte River and downstream reservoirs.* **Response #738-16:** The DEIS contained a discussion of invasive species. FEIS Sections 3.11, 4.6.11, and 5.11 contains revised, expanded discussions of these species in the Project area. Additionally, the proposed Project would not introduce aquatic nuisance species to any water body, nor increase the possible transport of aquatic nuisance species from one water body to another as the proposed Project. All the diversion points, which would be used by the proposed Project to transfer water, already divert water between waterways. The State Coordinator for Aquatic Nuisance Species was contacted and Dillon Reservoir does not have zebra mussels. ***Comment #738-43*** *(ID 3517)**:*** *Aquatics Forest Service General Issues with the Aquatic Biological Resource Report-PHABSIM*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project less than the decreases in flow upstream on the same river? These are only a few examples of inconsistencies in the analysis that should be explained in a supplemental or final DEIS. Page ES-19, table: It would assist readers if the names and descriptions of the alternatives were provided as a footnote. Page ES-22: Stream Morphology and Sedimentation The analysis should include discussion about the tributaries including how sediment is delivered from the tributaries to the main stem streams and how they are affected by larger quantities of water being diverted from the channel during peak flows. The analysis should also show how much peak discharge is reduced compared to bankfull flow conditions. Page ES-23: Floodplains The analysis should show how the combination of reduced high flows and sediment supply will alter floodplain sediment dynamics, which in turn will influence vegetation dynamics and processes and terrestrial wildlife. Page ES-23: Water Quality The analysis should show how the Project affects stream temperatures in tributaries downstream of the diversions. Page ES-25: No Action Alternative The DEIS clearly states that the West Slope streams will be narrower and shallower during runoff months due to the withdrawal of water to meet higher demands, but neglects to clearly state that the proposed alternatives will withdraw even more water from the West Slope streams. Page ES-28: Wetlands, Waters of the U.S. and Riparian Areas Reductions in floodplain inundation flows and possibly lower near surface water tables will affect the long-term viability of woody riparian species. Thus, the assertion of minimal effect on woody riparian species is questionable. **Chapter 1** Section 1.1, page 1-1, 1st paragraph: The DEIS states "Denver Water's collection system is composed of two major systems: the North System (also known as the Moffat Collection System) and the South System. These two raw water systems are geographically distinct and are not connected." As described in comments for "Section 1.3.1.6" the North and South collection system are interconnected by Clear Creek so that the "flexibility" argument is the Purpose and Need is moot. Section 1.1, page 1-1, 2nd paragraph: The statement "forest fires in DW's watersheds" implies a proprietary stake (land ownership) when in fact the majority of the watershed area is owned by the public and managed by the USFS. DW's structures are simply permitted on public lands by the managing agency. The statement should be restated such as "forest fires in publically-owned watersheds that provide the majority of DW's supply." Page 2 of 68	*analysis: 1. It is uncertain if IFIM meant PHABSIM in the analysis. IFIM is Instream Flow Incremental Methodology, a description of a process, whereas PHABSIM is a Physical Habitat Simulation Model, a quantitative model that provides comparable results for habitat area produced for different fish life stages over a continuous range of flows. Please clarify. 2. The analysis does not address any of the USFS study requests. The studies requested were necessary to provide information to help analyze project effects and eventually develop mitigation. These requests were dismissed by both DW and the FERC with the expectation that the DEIS would provide the requested information. After reviewing the DEIS, it is obvious that USFS interests were not addressed and that the data gaps described in the original study requests still exist. 3. The USFS has technical concerns with the PHABSIM modeling. For example; uncertainty exists about the habitats represented by modeling, too large a time step was used in the analysis to allow for adequate estimation of effects, and the results on a large stream system mask the effects on the smaller systems, the focus of our study requests. 4. The DEIS did not model the effects of alternatives on habitat for native cutthroat trout. This important species should have been included in the analysis. 5. The use of mean annual flow in the analysis masks the effects of the alternatives because the time step is too large 6. The Corps has direction from the US Fish and Wildlife Service (FWS) to assess the effects of actions on Lineage Greenback (GB) fish outside their historic range. Although several streams in the project area contain Lineage GB fish, the DEIS neither analyzed nor disclosed effects of the Denver Water operation on those populations. In addition to the exclusion of greenback cutthroat trout, the DEIS also failed to analyze several USFS aquatic special-status species that will be affected by increased diversions from the Fraser River basin. 7. The USFS*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 1.3.1.6, page 1-7: The analysis should include an alternative that considers interconnecting the raw water delivery for the south and north systems to address the imbalance in storage. Section 1.3.1.6, page 1-7: The statement that "there are no raw water conveyance facilities connecting the two (raw water collection) systems" is incorrect. DW regularly uses natural stream channels as raw water conveyances (e.g., Vasquez and South Boulder Creeks). According to DW employees, water exiting the Gumlick tunnel from the Williams Fork collection system (North system) can alternately be released to Clear Creek (rather than sent thru Vasquez tunnel to the Moffat tunnel). Water in Clear Creek can then be conveyed to the South Platte River in downtown Denver or into the existing South Boulder diversion canal that crosses Clear Creek to the Moffat Water Treatment Plant (WTP). Thus, Clear Creek represents a physical connection between part of the Moffat system and the South system. If needed, DW can exchange water from Clear Creek for South Platte River water higher up in the Platte watershed. Section 1.3.3, page 1-9: Under the City and County of Denver bullet, the DEIS states: "By charter, DW is required to provide an adequate supply of water to the people of the City and County of Denver for all uses and purposes". The DEIS contains little discussion of the effects of potential water conservation measures that may result in the consideration of other alternatives. Section 1.4.1, page 1-11: Figure 1-5 should be adjusted to reflect data on actual demand since the year 2000 because actual water use values diverge widely from the expected values. The demand curve has several issues, mainly tied to the fact that demands since 2000 were much lower than anticipated by the modeling. For example, actual demand in 2002 and 2003 was 216,000 AF versus the 312,500 AF predicted (31% error in demand forecast). Given that the demand curve was running in a negative direction since at least 2000, the intersection of the supply and demand curves should be pushed out considerably into the future. The Y-axis needs to be adjusted with the origin at 200,000 instead of 275,000 AF so that actual use values can be plotted on the graph. Demand projections produced by the (Integrated Resources Plan) IRP forecast model are an unacceptable basis for supply planning because the projections have not borne a close semblance to actual use. For instance, the amount of water expected from this Project on an annual basis is less than the error in the annual demand forecast. Using a 31% error value, actual demand in 2030 would be closer to 299,000 AF with supply at 345,000 AF for a surplus of 46,000 AF not including the 30,000 AF safety factor. Another flaw in the demand forecast model is that the proponents used the period 1973-1999 to generate the demand forecast when per capita use dropped substantially starting in 2000. Section 1.4.1.4, page 1-14: This section mentions an intergovernmental agreement with Arvada. Discuss other intergovernmental agreements DW has for the water contained in the Moffat Collection System (System) and the additional demand these agreements place on the need for securing a reservoir site to provide extra water for a perceived future shortage. The analysis should determine if DW could be creating future shortage situations by extending new contracts. Page 3 of 68	*is unable to assess the effects of proposed changes in flow or the frequency of dewatering on affected stream reaches because the DEIS provides insufficient data on the individual tributary streams. The DEIS masks the effects of the proposed action on flow changes and potential increases in the frequency of dewatering on individual tributary streams by focusing primarily effects to mainstem reaches. 8. The DEIS contains no discussion on how changes in diversion operations and increased volumes of water would affect individual fish. The DW system does entrain fish, yet the DEIS states in multiple locations: "Flow changes would have negligible or minor effects on habitat for special status aquatic species. Changes would occur downstream of Colorado River cutthroat trout occupied habitat." The Forest Service questions the accuracy of this conclusion because some of the diversion structures are located within occupied habitat, resulting in direct effects due to entrainment and the diversion of water on special status aquatic species.* **Response #738-43:** Please see the responses to Comment IDs 3888, 3889, and ID 4009. FEIS Section 5.11 discusses flow changes and diversions with the Project and the potential impacts to fish habitat and fish populations. Mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. PHABSIM, as used in the EIS, models habitat in streams with the representative reach approach described in the Instream Flow Incremental Methodology (IFIM) and is the common practice with PHABSIM. This approach models the important, common habitat types such as riffles, runs, and pools. The time step used in modeling was a daily

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Chapter 2** Page 2-30, Water Source: "Long-term historic data suggest that approximately 45% of the inflow to Gross Reservoir comes from the South Boulder Creek basin, and about 55% is diverted from the Colorado River basin." It is not clear from this statement whether 45% of the **storage** in Gross Reservoir originates from the South Boulder Creek basin, or whether 45% of the **streamflow** (which may be passed through the reservoir) originates in South Boulder Creek. Our understanding is that the reservoir was primarily designed to store trans-basin diversions. Section 2.4.2.1. page 2-42: The additional length of South Boulder Creek (and any other streams) to be inundated by the proposed expansion should be displayed as that is certainly a project effect. It would be useful to include that figure in the component description. **Chapter 3** Section 3.0, page 3-5: *Sampling Sites, Fraser River Basin:* The choice of the four sampling sites selected for the Fraser basin do not appear to represent the effects of diversions on all streams for the following reasons: • Each of the streams either has bypass flows or is downstream of a confluence with streams that have bypass flows. This is not representative of the effects of DW's diversion system. The Fraser diversion system diverts from 31 streams. Only 10 of the streams have bypass flow provisions. • Each of the streams is large in the context of streams in the Fraser basin. The majority of diverted stream are much smaller. • None of the sites is located immediately below diversions, where the effects of diversion are most pronounced. Section 3.1.5.1, Page 3-22, Fraser River, paragraph 1: The DEIS states: "As a result, DW, *at times, diverts all the stream flow from tributaries in the Fraser River basin that do not have minimum bypasses. This results in no stream flow for some distance below the diversions. This is how DW has operated in the past and plans to operate in the future.* The DEIS should discuss how DW plans to minimize their impact to channel morphology and aquatic habitat in these diverted streams. Section 3.1.5.1, Page 3-24, Water Quality: It would be useful to provide a summary of what the Surface Water Classifications mean. For most readers, Aquatic Life Class 1 and Recreation E do not have inherent meaning. Section 3.1.5.1, Page 3-25, Temperature section: Discuss whether channels that go dry because of water diversion will be in compliance with water temperature standards. Section 3.1.5.1, Page 3-25, Temperature: Without some sort of explanation of terms, it is not inherently meaningful to refer to Cold Stream Tier 1 or Tier 2. It would be useful to provide a summary or definition. Page 4 of 68	time step for creating a daily time series for habitat. It seems that the USFS may have mistakenly assumed that a monthly time step was used. The daily time step is the appropriate time step for the Moffat Project. PHABSIM is not necessary for modeling habitat in the smaller, diverted tributaries. When the tributaries are fully diverted, the assumption in the DEIS and FEIS that the dry stream bed provides no habitat for fish and invertebrates is realistic and additional modeling is not needed. Mean annual flow was only used in the analysis as a mechanism for focusing the analysis on the stream reaches that could potentially experience impacts of the Project. Using a level of 10% is a reasonable standard for selecting the stream reaches. In all stream segments the hydrology was reviewed and there were no instances when mean annual flow would change by less than 10% and there would be short-term changes in flow that could cause significant impacts. A daily time-step was used in all PHABSIMs. The DEIS did not focus on mainstem reaches; each diverted tributary was described and evaluated. The discussions of changes in hydrology and impacts to biological resources in the diverted tributaries have been expanded in FEIS Sections 4.6.11 and 5.11. The DEIS and FEIS do not discuss the potential impacts to individual fish, as stated in this comment. A focus on individual fish is beyond the scope of the EIS and not necessary for impact evaluation in the EIS. The extent that the diversion structures may entrain individual cutthroat trout would not change appreciably with the additional diversion of water with the Project. These cutthroat populations have

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 3.1.5.2, Page 3-33, Williams Fork River, *Floodplain section:* Just because the Williams Fork River has not been mapped by FEMA, it should not preclude an evaluation and assessment of the potential impact of the proposed action on floodplains in the Williams Fork River drainage Section 3.1.5.5, Page 3-52, South Boulder Creek: Discuss what type of annual and long-term maintenance occurs on the channel and whether any agencies, including the ACOE and USFS, provide input for this work. The DEIS should show how providing longer duration flows in South Boulder Creek when it is near peak hydraulic capacity will affect channel stability because of increased flow volume from the System. Show the natural hydraulic capacity of South Boulder Creek between the Moffat Tunnel outflow and Gross Reservoir. Understanding potential channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions. Is there a minimum flow requirement on South Boulder Creek between the Moffat Tunnel outflow and Gross Reservoir? The DEIS should present information on the low flow habitat conditions along this stream segment. The water chemistry data collected at the two monitoring sites on the North Fork of the South Platte River should be displayed to provide a better understanding of the interpretations of water quality changes discussed in the DEIS. Can DW implement Full Use existing now? Are the adequate water rights and facilities in place to accommodate this alternative? There is not a clear summary of the existing conditions in the North Fork of the South Platte and the South Platte River. Water quality, water quantity, geomorphology, aquatic habitat, riparian habitat and aquatic organisms need to be better described under all scenarios. There needs to be a more thorough comparison of the baseline/existing conditions with the Full Use Existing and Full Use Proposed Action. The DEIS states: "The North Fork South Platte River would see annual deliveries from Roberts Tunnel increase; this would increase phosphorous loading to both the North Fork South Platte River and Chatfield Reservoir, resulting in a long-term minor impact to water quality." How close are the affected stream segments of the North Fork of the South Platte and South Platte River to exceeding water quality standards, as set by the Colorado Department of Public Health and Environment (CDPHE)? Sectin 3.1.5.7, South Platte River: The South Platte Protection Plan (SPPP) was signed in 2003 by a diverse group of stakeholders (including DW) with the intent to protect outstandingly remarkable values (ORVs) on the South Platte River. The identified ORVs were: historical resources, cultural resources, fisheries, geologic, recreational, scenic, and wildlife. The SPPP includes the South Platte downstream of Eleven Mile Dam to the confluence with the North Fork and the North Fork upstream to the town of Ismont, sections that are within the boundary of the National Forest and potentially affected by the proposed action. This plan was put forth as an Page 5 of 68	obviously sustained themselves for decades since the diversions were first installed with the diversions functioning as they have in the past. The additional diversions during a few months in some of the wetter years should not affect the ability of the populations to continue to sustain themselves. ***Comment #738-82*** *(ID 3540)**:*** *Selection of Sampling Sites The sampling sites selected do not represent the range of channel types in the Fraser River and Williams Fork River basins. It appears that the sampling sites were only selected if the channel was in good condition and stable within a given channel type (i.e., unstable channels were not sampled). In addition, the sampling sites selected are skewed toward Rosgen A and B channel types, which are less likely to be sensitive to morphological changes from existing and proposed flow alterations. For example, 48 percent of the St. Louis Creek drainage consists of a Rosgen C channel type (response reach) and yet the sampling site selected was in a Rosgen B channel type (transport reach). Because more sensitive reaches (i.e., pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. Selecting only one sampling site on a limited number diversion sites does not reflect the range of channel responses that may occur along a channel. The accuracy of extrapolating channel responses from the results of a single sampling site to other locations along the channel or other channels is questionable. At a minimum, multiple sampling sites should have been selected for each channel type along the focus river segment to better understand the range of existing conditions and potential responses to the proposed action. Sampling site locations should have been determined randomly within a given channel type to minimize operator*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project alternative to the Pike-San Isabel National Forest's recommendation for designation of the South Platte River under the Wild and Scenic Rivers (WSR) Act. On page 3-58 the DEIS states that the SPPP includes a Streamflow Management Plan, under which DW committed to minimum outflows from Eleven Mile Canyon and Cheesman reservoirs. The DEIS indicates that this commitment may not be achievable under the proposed action: "All operations under the South Platte Protection Plan are subject to the principle of no loss of existing or future water supply. It is possible that conditions could occur under which DW would reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs." More information is needed to understand the impact to streamflow management guidelines agreed upon in the South Platte Protection Plan. There is no further mention of the SPPP in the DEIS and specifically no discussion of how the proposed action would affect the agreements set forth in the plan. Was the South Platte Enhancement Board, the governing body for the SPPP, consulted during the alternative development process? How will the proposed action affect the SPPP agreement? Provide a clear review of how the proposed alternatives would meet the requirements of the Plan, including protecting the Outstanding Remarkable Values (ORV) identified along the mainstem and North Fork of the South Platte River. As stated above, the SPPP was developed as an alternative to WSR Designation. In Chapter 4 – Environmental Consequences there is no analysis of the effects of the proposed action on the values that could impact the ORVs. If ORVs are impacted under this Project, the Forest may need to reconsider Wild and Scenic designation for the mainstem and North Fork of the South Platte. In 2004, the Pike-San Isabel Forest Plan was amended "…to establish a new management area along the South Platte River between Elevenmile Reservoir and Strontia Springs Reservoir, and along the North Fork of the South Platte River from below Bailey to the confluence with the South Platte River. These portions of the rivers were found to be eligible for consideration as potential Wild and Scenic Rivers." The purpose of this management area designation is to protect the river values that were identified during the eligibility study. Thus, we are concerned about potential impacts to these two river segments. Section 3.1.6, Page 3-67, Channel Dynamics: *A. Selection of Sampling Sites:* The rationale to select sampling sites based on field observations, natural quality of the site, hydraulic modeling potential, and accessibility are subjective criteria. The sampling sites selected do not represent the range of channel types in the Fraser River and Williams Fork River basins. It appears that the sampling sites were only selected if the channel was in good condition and stable within a given channel type (i.e., unstable channels were not sampled). The sampling sites selected are skewed toward Rosgen A and B channel types, which are less likely to be sensitive to morphological changes from existing and proposed flow alterations. Because more sensitive reaches (i.e., pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. For example, 48 percent of the St. Page 6 of 68	*bias when selecting sampling sites. The DEIS does not include a sampling site on Vasquez Creek downstream of Gumlick Tunnel where flows are projected to increase by 20% through the tunnel with the addition of water diverted from the Williams Fork drainage. This proposed increase in flows could potentially affect channel stability, channel morphology, and aquatic habitat along Vasquez Creek between the Gumlick Tunnel outflow and the Denver Water Board diversion structure. This creek should be sampled and the information made available in the FEIS.* **Response #738-82:** Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. A sampling and sediment modeling location was added on Vasquez Creek downstream of the Gumlick Tunnel outflow to evaluate stability and channel morphology. Historic photographs were also evaluated to provide additional insight to past and current stream conditions. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-77*** *(ID 3539)**:*** *Hydraulic Capacity and Operation of Diversion Structures The dimensions, hydraulic capacity, and operational history of each diversion structure needs*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Louis Creek drainage consists of a Rosgen C channel type (response reach) and yet the sampling site selected was in a Rosgen B channel type (transport reach). Reach morphology and sediment dynamics are closely linked to position within the watershed and significant longitudinal variability in the response to an upstream disturbance can occur along a single stream. Additionally, the nature of channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions such that similar changes in inputs can produce different channel adjustments in different reaches. Selecting only one sampling site on a limited number of diversion sites does not reflect the range of channel responses that may occur along a channel. Extrapolating channel responses from a single sampling site to other locations along the channel or other channels is not an acceptable practice. At a minimum, multiple sampling sites should have been selected for each channel type along the focus river segment to better understand the range of existing conditions and potential responses to the proposed action. Sampling site locations should have been determined randomly within a given channel type to minimize operator bias. The DEIS does not include a sampling site on Vasquez Creek downstream of Gumlick Tunnel even though flows are projected to increase by 20% through the tunnel from water diverted from the Williams Fork drainage. The increase in flows could potentially affect channel stability, channel morphology, and aquatic habitat along Vasquez Creek between the Gumlick Tunnel outflow and the DW Board diversion structure. *B. Hydraulic Capacity and Operation of Diversion Structures:* The dimensions, hydraulic capacity, and operational history of each diversion structure need to be provided in order to evaluate the impacts of the existing diversion structures on fluvial processes and channel morphology from the 1) natural flow and sediment regime and 2) proposed changes to the operation of each diversion structure. For example, the annual and maximum annual volume of water diverted by the diversion structure in a given year and the annual and annual maximum peak discharge diverted by the diversion structure should all be shown as well as the maximum discharge capacity of the diversion structure. Discuss how the diversion structure discharge capacity compares to the flow remaining in the channel. Does the diversion structure span the channel? Explain how the diversion structure affects the transport of sediment to the downstream channel. Section 3.1.6, Table 3.1-18 and Table 3.1-19: See Comment A (Page 3-67) above. Site selection seems biased and not relevant to addressing how potential flow alterations may affect fluvial processes and channel morphology for the range of channel types in the Fraser River and Williams Fork River basins. Section 3.1.6, Table 3.1-18: It is not clear how this table relates to this analysis. The DEIS claims that "channels classified the same are assumed to have similar hydraulic, sediment transport, sediment supply, lateral migration, and vegetative encroachment characteristics." If channel type is important, perhaps a more process-based approach would have been more appropriate. Rosgen channel-type classifications have no bearing on HEC-RAS modeling nor do they provide any substantial or valuable information to the analysis. Page 7 of 68	*to be provided in order to evaluate the impacts of the existing diversion structures on fluvial processes and channel morphology from the 1) natural flow and sediment regime and 2) proposed changes to the operation of each diversion structure. The FEIS should show: the annual and maximum annual volume of water diverted by the diversion structure in a given year: the annual and annual maximum peak discharge diverted by the diversion structure; the maximum discharge capacity of the diversion structure; how the diversion structure discharge capacity compares to the flow remaining in the channel; whether the diversion structure span the channel; how the diversion structure affects the transport of sediment to the downstream channel.* **Response #738-77:** With the Moffat Project on-line Denver Water would divert additional water in average and wet years. The operations of the diversion structures including the general timing and maximum rates of diversion are not anticipated to change. The impacts of Denver Water's Diversion structures on channel morphology and fluvial processes was based on an analysis of daily flow data for the entire study period at each representative reach. Information on the average, wet and dry annual volumes of water diverted by each diversion structure and the percentage of flow diverted was added to FEIS Appendix H. Information on the flow remaining in the channel for average, wet and dry years is provided in FEIS Appendix H-3. Additional sediment sampling and modeling sites were added immediately below diversion locations to assess stream morphology responses at these areas. Existing conditions were evaluated and documented at other diversion points to assess stream conditions. Historic aerial photographs were evaluated at diversion points to define past stream

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 3.1.6, Table 3.1-19: This table provides some values that are not within the accepted range of variability for the stream channel types presented. As an example, sinuosity is extremely low for all sampling sites, but it is especially low for C-type channels. The sinuosity values shown would indicate that there is a problem with the system. In addition, the DEIS should show the entrenchment and flood-prone width values of the sample sites. Section 3.1.6.1, pages 3-73 and 3-74, Fraser River: *FR4- Ranch Creek:* The DEIS states that this site is located just below the confluence of the "North Fork South Platte River of Ranch Creek", which is incorrect as this is not the Platte River drainage. Section 3.1.6.5, South Boulder Creek above Gross Reservoir, page 3-78: "Based on visual observations of the reach and predominate bed material, SBC1C is characteristic of a Rosgen B3 to B2 stream type." South Boulder Creek is more likely to be an F2 or F3 channel, with a high width to depth ratio and incised channel where entrenchment has created a loss of access to the floodplain. See Rosgen, D. "Applied River Morphology", 1996, pages 5-6 and 5-150 through 153. Section 3.2.5, page 3-86 and 3-87: The water budget described for the Fraser River basin is incorrect and needs to be reworked for the following reasons. The estimate of evapotranspiration provided by Apodaca and Bails in 1999 is extremely high compared to actual current ET values in 2010 due to widespread lodgepole pine mortality and was calculated as the budget residual. The consumptive use value provided, which is 15 years old, is an underestimate as Fraser basin development has accelerated greatly in recent times. There are inconsistencies between the referenced materials and information presented in DEIS: Why would DW personnel tell Apodaca and Bails in 1995 that the value for surface water diverted into the Fraser basin was only 300 AF when the DEIS shows a modeled (PACSM) value of 8700 AF for a similar period? A similar question is relevant for surface water diverted out of the Fraser basin. DW told the USGS in 1995 that the Moffat tunnel diverted 23,500 AF annually but table 3.2-1 shows a modeled value of 60,900 AF for the similar period. For example, page 3-17 mentions that the average annual Moffat tunnel diversions between 1975 and 2005 were 55,800 AF. Which of these three values is correct? This matters because the "groundwater out" value is unknown and calculated as the residual of the budget. It also appears as if the "surface water out" values are highly variable with Apodaca and Bails stating the value is 135,500 AF and the DEIS claiming only 64,500 AF. Explain why the DEIS water budget for the Fraser (table 3.2-1) mixes and matches data from the same report for the same time period with modeled PACSM output. Explain why there was a need to model existing surface-water diversion values to develop a hydro budget. Show how much water DW is actually taking under existing conditions. It is difficult to draw conclusions from the data presented. Section 3.5.0, page 3-105, Vegetation Types: The following summary of vegetation surveys is provided: "Vegetation in the Project Area was surveyed and mapped in late August and September of 2005 and June of 2006. In areas of potential permanent disturbance, such as the reservoir sites and other aboveground facilities, the sites were traversed on foot to identify plant community associations and dominant species. Areas of temporary disturbance, such as conveyance facilities, were primarily observed by a vehicle reconnaissance. Areas of special interest identified during the vehicle reconnaissance, such as riparian communities, were also Page 8 of 68	responses. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-72*** *(ID 3538)**:*** *Transport Capacity, Sediment Supply, and Effective Discharge The relationship between transport capacity and sediment supply are poorly described. The premise that the morphology of channel will not change because transport capacity is considerably greater than sediment supply from the proposed flow changes is incorrect. Existing channel morphology reflects that it is in balance or in dynamic equilibrium with the current flow and sediment regime. Just because transport capacity remains greater than sediment supply when peak flows are reduced during average and wet years does not necessarily indicate morphological channel changes will be minimal due to implementation of the proposed action. Reducing the frequency of effective discharge and annual transport capacity will decouple the sediment transport conveyor belt by eliminating or reducing Phase 2 sediment transport, which is critical for creating and maintaining channel form. The proposed action may eliminate frequent, moderate flood events in, which are generally considered to determine channel dimensions and form. This can cause pools to become shallower as they fill with sediment and cause the channel to gradually narrow as riparian vegetation becomes established along the channel margins. This effect will be more apparent and likely in low gradient, unconfined channels. As a result, larger, more infrequent, floods during higher water years may be unable to remove the established vegetation. At several of the sampling sites sand deposition was observed and considered an indicator of potential aggradation (see sampling site descriptions in*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project surveyed by foot." No mention is made of surveys for USFS Sensitive or rare/local concern plants as part of vegetation surveys, and no previous surveys are mentioned, such as the plant surveys done around Gross Reservoir for the DW 2001 FERC relicense. These surveys were done specifically for the Recreation Management Plan and powerline relocation and did not include all areas of anticipated disturbance for the proposed reservoir enlargement, as indicated under FERC License Article 410, heading B. Survey Methodology Used which states "Specific areas around Gross Reservoir were surveyed during June, July, and August 2001.... No attempt to survey the entire reservoir was made." The USFS submitted a Study Request for a Project Area Sensitive and Rare Plant Survey that included specific requirements for determining appropriate species lists (see Appendix G comments), described the need for additional surveys, and included specification guidelines for survey reports. None of this information is included or referenced in the DEIS, and there are no additional available reports or other documentation indicating that the requested surveys occurred. Section 3.5.0, page 3-106, Noxious Weeds: *Table 3.5-1: Noxious Weeds Observed or Expected to be Present in the Project Area:* this table does not include weeds known to occur in Grand County that are associated with DW's System at tunnel portals, along access roads and pipelines, and at large facilities. Species documented to occur include oxeye daisy and Canada thistle. Orange hawkweed that occurs along the upper Fraser River may be associated with DW's collection system and/or may be conveyed by the system. See related comments under Section 4.5.1.1. Section 3.5.1.1, beginning on page 3-107, Gross Reservoir: Additional plant communities need to be discussed in this section. Refer to Table 5: Plant Communities of Local Concern for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP) in Appendix G comments for additional plant communities, including ponderosa pine old growth, known to occur in the project area, and additional communities for which surveys should be done and effects analysis conducted depending on survey results. The discussion of Potential Conservation Areas (PCA) could have occurred in this section or under Wildlife, or both. Since some of the three PCA's are designated primarily to protect plants, it would be helpful to reference the PCA discussions in this section, by page number(s) or section number(s) where they occur under Wildlife. Although Article 410: Plan to Protect Rare and Sensitive Plants is cited in this section, however information from the Plan regarding occurrence and expected inundation of USFS Sensitive and rare/local concern plant populations is not mentioned in this or other applicable sections. Section 3.6.0, page 3-117 and 3-120 – 3-121, Overview and/or Wetlands: Given the importance of fens and the documented occurrence of fens at the two Williams Fork sample sites, discussion of fens in either or both of these sections is warranted. Discussion could include a definition of fens and a description of their conservation and legal importance. Discussion should also include any surveys for fens that have occurred in the project area, whether conducted specifically for the proposed project or for other purposes, and results of such surveys. If no project-specific surveys were done, surveys should be conducted for the project area, including Page 9 of 68	*section 3.1.6.1 and 3.1.6.2). The proposed reduction in peak flows during average and wet water years will exacerbate sand/fine gravel deposition and channel aggradation. The study design used to assess the impacts of changes in sediment transport capacity on channel morphology is not well described in the DEIS. The USFS has the following concerns with the analyses and interpretations:* **Response #738-72:** Sediment transport modeling completed as part of the FEIS evaluates the stream's ability to transport its sediment load for both existing conditions and flow conditions assuming the different Project alternatives. Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. Changes in sediment transport capacity and supply for Current Conditions (2006) and Project alternatives were compared as part of the numeric assessment used to quantify changes in channel morphology. Assessments were also completed using historic data to better understand past responses of representative stream segments to flow diversions as a way to better understand possible impacts of additional future diversions. This analysis provides additional insight into how flow diversions and reductions in transport capacity can and do occur without impacts to stream morphology. Existing published research related to the stream's response to diversions has been summarized in the FEIS. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results are provided in FEIS Sections 4.6.3 and 5.3.

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project all areas with the potential to be impacted by water depletions. Fens are included Table 5: Plant Communities of Local Concern for the ARP under Appendix G comments. Section 3.6.0, page 3-117, Overview and/or Wetlands: Table 3.6-1, Summary of Riparian Areas and Wetlands, page 3-120, AND Section 3.6.1.1, beginning on page 3-122: Wetland and riparian habitat mapping for reservoirs, including Gross Reservoir, is described as follows in the fourth paragraph of Section 3.6.0: "These facilities were evaluated using field studies within the proposed or representative affected areas to delineate wetlands and other waters and to map riparian woodland and shrubland communities. Because wetlands are addressed in detail for these facilities, the discussion of riparian areas covers the remaining non-wetland riparian areas." It is not clear from these statements or subsequent discussion in Section 3.6.1.1 whether 100% of wetlands and riparian areas around Gross Reservoir with potential to be inundated by the proposed project were surveyed on the ground. Riparian and wetland acres presented in Table 3.6-1 for the Gross Reservoir area appear small. Clarification is needed regarding whether 100% of wetlands and riparian areas proposed to be inundated around Gross Reservoir have been documented based on thorough field surveys and presented in Table 3.6-1. Section 3.6.5.1, page 3-147, Fraser River; FR2 – Fraser River Below Tabernash, page 3-147 Third indented paragraph under "Three CNHP Plant associations…": discusses the shrubby cinquefoil/tufted hairgrass plant association that may be associated with fens. This section discusses where this plan association may be found based on Carsey et al 2003, but does not clarify where it is actually found at sample site FR2. This section also does not mention whether a fen is present at sample site FR2. Section 3.7.0, page 3-169, Overview: This brief section mentions wildlife potentially present in the Project Area, and species distribution information obtained from habitat assessments. No mention is made of any surveys done for wildlife, either for the 2001 Federal Energy Regulatory Commission (FERC) relicensing, or for the Project, and no reference is made to additional reports that might contain this information. Surveys and habitat assessments were requested in the USFS Study Request for Special-Status Terrestrial Wildlife Species and Habitats. There are no additional available reports or other documentation indicating that the requested surveys occurred. Section 3.7.1.1, page 3-169, Gross Reservoir: *Second paragraph:* The third sentence mentions that insects including western spruce budworm have killed large patches of ponderosa pine on the west side of Gross Reservoir. It should be noted also that large patches of Douglas-fir, the favored host of western spruce budworm in Colorado, have also been killed in the area west of Gross Reservoir. Section 3.7.1.1, pages 3-169 and 3-170, Big Game: *General comment:* The Colorado Division of Wildlife (CDOW) Natural Diversity Information System (NDIS) database is cited multiple times with a 2005 date. Current (2009) NDIS data are available and should be cited instead of the outdated version. *First paragraph on page 3-170:* It is mentioned under the discussion for mule deer on the previous page that there are no migration corridors. Under the discussion for elk, migration Page 10 of 68	***Comment #738-71*** *(ID 3537)**:*** *The study design used to assess the impacts of changes in sediment transport capacity on channel morphology is not well described in the DEIS. The USFS has the following concerns with the analyses and interpretations: 1. Use of the sediment supply estimates from the Two Forks EIS is not supportable (Simons and Associates, 1986). If the sediment supply equations from the Two Forks EIS are to be used in this EIS, the relevant assumptions, channel geometry, sediment transport data, and results from that study should be provided. Without this information, a reader cannot objectively evaluate how the sediment supply data and results from the Two Forks EIS apply to this study or if the sediment supply equations from the Two Forks EIS drawn were appropriately applied. 2. It is important from a channel morphology perspective to show how the mobilization of D50 and greater size particles are effected by flow alterations (Phase 2 sediment transport). Reducing the frequency of Phase 2 sediment transport could have an adverse effect on channel morphology. 3. Transport capacity needs to be assessed at discrete particle size intervals. No data were provided for the transport capacity of discrete particle size intervals at different flows (total load only presented). 4. The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, mountain channels composed of gravels, cobbles, and boulders. Channel beds are considerably coarser and steeper than the studies used to develop the equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate. 5. Field data were not collected to "calibrate" the quantity and size of bedload being transported at different discharges. 6. Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project corridors are not mentioned; however, according to CDOW NDIS 2009 data, the Gross Reservoir area is within a migration corridor. Section 3.7.1.1, pages 3-170 and 3-171, Small and Medium-sized Mammals: *Second paragraph page 3-170:* Other species known to occur are discussed, without mention of how they are known to occur (observations during field surveys, local knowledge, database, etc) and whether they are known to occur in the Gross Reservoir area, or assumed to occur based on habitats present in the project area. *List of bat species on page 3-171:* Fringed myotis and Townsend's big-eared bat are USFS Sensitive species, therefore should be discussed in Section 3.8 Special Status Species . *Table 3.7-1 Raptors Likely or Known to Occur in the Gross Reservoir Study Area, page 3-171:* Osprey should be added to this table. The USFS installed two osprey nest platforms in 1993 and ospreys have attempted nesting for more than one season since then, though no successful nesting has been documented. Osprey that nest at other relatively nearby areas forage for fish at Gross Reservoir. Also, since there have been previous nesting attempts, the nest platform area should be added to Figure 3.7-4 as a Potential Raptor Nest. Northern goshawk should also be added, particularly since effects to the species are mentioned under both Wildlife and Special Status Species sections in Chapter 4. *Last paragraph page 3-171:* Flammulated owl is a USFS Sensitive species, therefore should be referenced to Section 3.8 Special Status Species. Also, if owls are considered raptors for this analysis, they should be included in Table 3.7-1 for consistency. *Table 3.7-2 Common Songbirds in the Gross Reservoir Study Area by Habitat Type. page 3-172:* Several species – pygmy nuthatch, warbling vireo, Wilson's warbler, and mountain bluebird - are USFS Management Indicator Species (MIS) for the ARP, which should be noted in this table and referenced to Table 3.7-3 on the following page, and/or the appropriate discussion in Section 3.8. *Reptiles and Amphibians, page 3-173:* Northern leopard frog is a USFS Sensitive species therefore should be referenced as such and to the appropriate discussion in Section 3.8. *USFS Management Indicator Species (MIS), page 3-173:* The list in Table 3.7-3 is outdated and needs to be replaced with the May 2005 list. This list is provided in Table 3 of comments to Appendix G. It is unclear why the MIS list is displayed here and the sentence directly above the table refers the reader to further discussion in Section 3.8. Including the list and discussion in the same section would help make the analysis easier to follow. *Potential Conservation Areas (PCA), page 3-173:* Current Colorado Natural Heritage Program (CNHP) data for PCA's (available on their web site at http://www.cnhp.colostate.edu/) shows Winiger Gulch and South Boulder Creek above Gross Reservoir as one PCA, named Winiger Gulch with an "alias" of "South Boulder Creek above Gross Reservoir". It is designated to protect two rare plant communities, both mentioned in this section, and one rare plant species occurrence, not mentioned in this section but which should be discussed in Section 3.8. Page 11 of 68	*appropriate bedload transport equation is used. Results from such studies should be used with caution when predicting potential channel responses.* **Response #738-71:** Supply equations were generated based on extensive field collected data. Additional information on the derivation of the sediment supply estimates has been provided in FEIS Section 4.6.3. A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results are provided in FEIS Sections 4.6.3 and 5.3. Additional assessments including sensitivity analysis of sediment supply and sediment transport equations are provided in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic photos as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. ***Comment #738-66*** *(ID 3536)**:*** *Assumptions Used to Model Flow Hydraulics and Transport Capacity in HEC-RAS The assumptions used to model flow hydraulics and transport capacity using HEC-RAS were not presented and the general limitations of using HEC-RAS to model flows and transport capacity in steep, forested, mountainous channels were not discussed. In addition, the limitations of using flow hydraulics and transport capacity output from HEC-RAS to assess channel impacts and responses to flow alteration were not discussed. Sediment sampling data should be used to calibrate sediment transport equations. Whenever*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *USFS Managed Areas, page 3-175:* Detailed discussion is needed regarding affected environment for important wildlife habitats included in the ARP Forest Plan: existing old growth, old growth development areas, old growth retention, effective habitat, interior forest, and forested and open corridors. GIS data are available from the USFS on request. Discussion should include quantification of available amounts of these habitats in the Project Area as compared to amounts available Forest-wide, based on available GIS data and applicable surveys. Surveys for old growth would include surveys previously conducted, available from the USFS on request, and any site-specific old growth surveys conducted specifically for this project. This information was requested in the USFS Study Request for Special-Status Terrestrial Wildlife Species and Habitats. Section 3.8, Species lists: All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes USFS Sensitive species, Management Indicator species, and rare/local concern plants. These mistakes should be corrected in subsequent versions. Section 3.8, Special Status Species analysis: The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects for special status species (SSS) other than three federally and/or state-listed animal species that are discussed individually. Section 3.8.0, page 3-195, Overview: No information is presented in this section indicating there were surveys for SSS, and no reference is made to additional reports that might contain this information. USFS Study Requests included specifications for wildlife and plant surveys. There are no additional available reports or other documentation indicating that the requested surveys occurred. See also comments under Section 3.5 Vegetation above re: plant surveys. *Second paragraph:* The first sentence states that "Information was obtained from… previous studies and reports…." This should include, and should reference here, relevant information in Articles to the 2001 FERC relicense and/or the USFS 4(e) conditions, such as results of wildlife and plant surveys that are relevant to the Project. *Fourth (last) paragraph:* The first sentence refers to CNHP 2005 data, which is outdated. A current list of USFS Region 2 Sensitive Species for the Arapaho and Roosevelt National Forests is provided under comments to Appendix G. Section 3.8.1.1 , page 3-195, Gross Reservoir: *Bald Eagle:* The bald eagle is now a USFS Sensitive species and should be referenced as such. *Other Special Status Species, page. 3-197:* This section should list, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), all federally and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously addressed under Vegetation in Section 3.5, under Wildlife in Section 3.7, or earlier in Section 3.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species which should be considered. Page 12 of 68	*possible, the use of measured sediment loads for testing and calibration of the equations is preferred to modeling exercises. Additionally, because pebble counts tend to be biased towards larger particle sizes and underestimate the presence of smaller size fractions in the channel bed, the lack of collecting subsurface data as was done in this study will further reduce the accuracy of sediment transport capacity estimates.* **Response #738-66:** Additional discussions on the use of HEC-RAS for hydraulic and sediment transport calculations were added to the FEIS. Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. Additional assessments were conducted for the FEIS and included sensitivity analysis of sediment supply and sediment transport equations and an assessment of transport capacity. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic data as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-60*** *(ID 3535)**:*** *General Hydrology Inappropriate baseline: The logic behind the selected baseline for effects analysis is unclear. The selected baseline minimizes the volume of diversions the effects analysis is based on. The baseline for effects analysis should be 2006 rather than projected full use in 2016 (difference in volume of diversions in the full use compared to*

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project There is no reference here to any plant species including USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense, which are documented and mapped in License Article 410. This section and/or supporting documents should discuss plant surveys that have occurred and species found. No reference is made to any additional reports that might contain this information. For Special Status Species found in the project area or that may be impacted by the project, documentation should be provided in the DEIS and/or supporting documents that includes overall species population status; status of other known populations, especially near the project area; evidence that current literature (including USFS Rocky Mountain Region Species Conservation Assessments available at http://www.fs.fed.us/r2/projects/scp/assessments/index.shtml) was reviewed and incorporated; and consultation with species experts. Two of these assessments (*Botrychium* species and boreal toad) are listed under References, but many more are available and pertinent to this analysis. As discussed under Section 3.5 Vegetation above, 2005 and 2006 vegetation surveys did not appear to include specific surveys for USFS Sensitive and rare/local concern plants, and no reference is made to any additional reports that might contain this information. The information presented does not address the USFS Study Requests for surveys for wildlife and plants, and there are no additional available reports or other documentation indicating that the requested surveys occurred. Section 3.8.1.1, Page 3-197: 2nd and 3rd lines of page under greenback cutthroat trout discussion: "This species was petitioned for listing as threatened, but a 12 month finding by the FWS in 2007 determined that listing was not warranted at that time (FWS 2007)." This is inaccurate; greenback cutthroat trout have been listed under ESA since 1973. The 12-month finding pertains to Colorado River cutthroat trout, not greenback cutthroat trout. Section 3.8.5.1, page 3-202, Fraser River: *River Otter:* This species is USFS Sensitive and should be referenced as such. In addition, recent data show that river otters occur in the upper reaches of the Fraser River to the headwaters (CDOW, NDIS 2009; and Doreen Sumerlin, USFS Sulphur Ranger District, personal communication, Feb. 5, 2010). These findings need to be reflected in this section. *Other Special Status Species, page 3-203:* This section should include additional species that may occur in wetlands and riparian areas along river corridors – for example, USFS Sensitive plant species Park milkvetch, Selkirk's violet, and other species; plant species of local concern including ferns, three twayblade species *(Listera spp.)* and others; and USFS MIS Wilson's warbler. A discussion of any surveys that have occurred, whether occurrences have been documented, and available habitat should be included for each species. No reference is made to any additional reports that might contain this information. *Other Special Status Species paragraph Page 3-203:* The following SSS are excluded from this discussion: mountain sucker, greenback cutthroat trout, lake chub, and sensitive mollusk (Rocky Mountain capshell). Page 13 of 68	*proposed action scenario is only 3000 AF/year). The "Full use" concept is questionable based on the Forest's understanding of the conveyance limits in the Moffat collection system. Rather than simply asserting that Denver would maximize diversions, the EIS must provide an improved description of how full use would be achieved without additional storage to verify that the full use scenario is even possible.* **Response #738-60:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 3.8.5.2, pages 3-203 and 3-204, Williams Fork River: Additional species should be included – see comment re: Section 3.8.5 River Otter and other Special Status Species above. Section 3.8.5.3, page 3-204, Colorado River: *Other Special Status Species:* Additional species should be included – see comment re: Section 3.8.5 River Otter and other Special Status Species above. Section 3.8.5.6, North Fork South Platte River: The following statement is made about the Preble's Meadow Jumping Mouse: "The portion of the North Fork South Platte River within Jefferson County is considered within the overall range of Preble's, however no occupied range is located on the North Fork South Platte River in this area." We believe that this statement is in error, because a recent study has documented the Preble's mouse on the North Fork in Jefferson County (private land). In addition, it appears that much of the North Fork in Jefferson County contains suitable habitat for the Preble's mouse. Section 3.9, page 3-211, Affected Environment for Aquatic Biological Resources: *Table 3.9-1* – includes fish species name that are incorrect due to changes and updates in taxonomy. The correct spelling for cutthroat trout species is *Oncorhynchus clarkii* sp. In addition to Metcalf and others (2007) finding that greenback cutthroat trout "are still at a high risk of extinction", the authors also determined that the greenback lineage has been discovered outside its historic range. The ACOE has a responsibility to analyze the effects on greenback lineage fish outside their native range if they are found to occur elsewhere, as within the DW system. *Habitat page 3-213:* The DEIS does not adequately explain or describe the fisheries habitat simulations used in the analysis. The DEIS states that habitat simulations were conducted using IFIM. IFIM and PHABSIM are not the same thing. IFIM is an analysis process, whereas PHABSIM is a model which is often used to identify habitat tradeoffs to be evaluated within the IFIM process. Habitat simulations are not generated through the IFIM process, rather they are generated using PHABSIM. *Nuisance Species page 3-214:* Nuisance species are a real problem in Colorado and within the System, with potentially large risks to water infrastructure. DW and the ACOE should recognize the importance of this issue. It should not be treated lightly as it has been in the analysis. New Zealand mudsnails should be included only in the invasive species discussion. Section 3.9.1.1, page 3-214, Gross Reservoir: In addition to fish, mollusks need to be addressed in the affected environment discussion of Gross Reservoir as they are a Regional sensitive species (Rocky Mountain Capshell snail) and may be present in Gross Reservoir. Section 3.9.5.1, Fraser River: Fraser River Mainstem: *Page 3-220:* The DEIS states "whirling disease has been identified as occurring within the Fraser River mainstem. The rate of infection is relatively high in the lower Fraser River (Nehring et al. 2003)". Why is the infection in the Frazier River so high and why will flow reductions improve Tubifex habitat? Page 14 of 68	planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/yr, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative. The difference in average annual Moffat Tunnel diversions between the Proposed Action (Full Use with a Project Alternative) is approximately 10,300 AF not 3,000 AF as suggested in the comment. The 3,000 AF difference referenced in the comment is based on a comparison Current Conditions and Full Use of the Existing System. The Full Use of the Existing System scenario reflects hydrologic changes that would occur as Denver Water's average annual demand increases to 345,000 AF/yr. The Platte and Colorado Simulation Model (PACSM) accurately reflects the conveyance limits throughout Denver Water's system including the Moffat Collection System. Denver Water's diversions under the Full Use of the Existing System scenario are constrained in PACSM by several factors: • Downstream senior water rights calls and instream/bypass flow requirements • Water right decree limitations • Available storage capacity in Denver Water's system

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *Page 3-222: Fraser River Tributaries:* The DEIS states "A total of 31 tributaries to the Fraser River *may* be potentially affected by the implementation…" "May" should be changed to "will" since these streams are already affected by the project and this effect will continue and get worse with the implementation of these alternatives. *Table 3.9-6:* Because of the scope of this analysis, why weren't the data gaps filled in for fish presence upstream of the diversions to get general information on what should be seen downstream of the diversions? *Page 3-225:* "In 2005, three sites were dry at the time of sampling….; therefore, no fish were present." These three streams are not intermittent; the reason they were dry is that all of the flow was diverted. The DEIS should explain this; otherwise, the reader may believe they do not flow year-round. *Pages 3-225-231:* There is no consistency in the discussion of fish sampling. As described in the DEIS, the USFS has Right of Way agreements with DW for instream flows in a number of streams within the Moffat Collection system. These instream flows as well as the amount diverted according to DW's water rights are shown in Table 1 below, modified from tables in the DEIS. As can be observed, DW diverts over 95% of the water in just about all of the streams affected by the project on NFS lands. Although the USFS does not dispute DW's right to divert these flows, the agency does dispute the assertion that the effects of the existing and proposed level of diversions on fish are "minimal" (as stated repeatedly in the DEIS) because they primarily occur during spring runoff of normal and wet years. The proposed diversions not only have an effect on physical habitat for fish in these streams but the volume of water diverted also has significant potential to entrain fish into the diversion structures and ultimately into the System itself. The possibility of entrainment is not only a concern for introduced brook trout but also for cutthroat trout. Page 3-203 of the DEIS identifies a number of diverted streams in the project area with either pure or hybridized populations of Colorado River Cutthroat populations. According to the DEIS pure populations are known to occur in Hamilton, Jim, Ranch (all three forks) and Little Vasquez Creek. In addition, Vasquez, Cabin and the Fraser River contain populations of CR Cutthroat that are known to be hybridized with other cutthroat or rainbow. Cutthroat are likely to be more impacted by increased diversions during the spring as proposed by DW since they are spring spawners and are likely to be migrating looking for potential spawning sites. The combination of increased activity in streams where almost all of the water is being removed at DW diversion points means Colorado River cutthroat trout (a Region 2 Sensitive Species) are highly susceptible to entrainment during this period. This potential effect is not addressed in either the ACOE DEIS or the DWLA for the project. Page 3-218 describes the geographic scope of the analysis as focusing on streams where "the annual change in flow is minimal but changes in several months of an average year are greater than 10%." Although an increase in 10% of diversion during wetter months may not seem like much, this increase becomes significant when over 95% of the stream is already diverted. Page 15 of 68	• Conveyance limitations • Physical supply Under the Full Use of the Existing System scenario, Denver Water's diversions would increase given the constraints listed above in order to meet a higher demand in the future. Because there is limited existing storage in the Moffat System, most of the additional water diverted through the Moffat Tunnel, particularly in years that Gross Reservoir fills, would be delivered directly to meet a higher demand as opposed to being stored. PACSM was thoroughly reviewed and the results confirm the Full Use of the Existing System scenario is possible. ***Comment #738-3*** *(ID 3534)**:*** *Demand forecast is unreasonable and the actual use of Moffat water is obscured: Demand projections are inaccurate when compared to actual use in period between 2000 and 2003. From the description of the Moffat WTP as "primarily a peaking plant", it appears as if the projected supply shortfall is mostly due to hypothesized demand for outdoor irrigation water. Furthermore, portions of the perceived supply shortfall appear to be self imposed by DW such as the recent selling of 3000 AF/year of water to Arvada (in exchange for real estate to build a reservoir on), contingent on success of this proposal.* **Response #738-3:** The data, methodologies and assumptions behind the water demand projections are described in detail in the technical memoranda included in Appendix A. As described in those memoranda, a large amount of historical data, gathered for a number of years, was incorporated into the models to support the projections of Denver Water's future demands. It is unreasonable to compare any specific, short period of historical water use, especially a drought period,

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Table 1. Moffat Collection System Minimum Bypass Requirements as compared to DW water rights for selected streams. Modified from DEIS tables 3.1-8 and 3.1-7.** Reach: Fraser River; Vasquez Cr.; St. Louis Cr.; Ranch Cr.; Trail Cr. (N& S); Hurd Cr.; Hamilton Cr.; Cabin Cr.; Little Cabin Cr.; Meadow Cr. DW Water Right (cfs): 275; 275; 700; 112; Hamilton-Cabin Ditch and Extension = 70 + 25; 5100 Ac Ft + 294 Ac Ft. Min. Instream Flow (cfs): 10, 4; 8, 3; 10, 3; 4, 2; .25; 1; 1.5, 1; 2; .25; 3, 1.5 Period: 5.15 – 9.15; 9.16 – 5.14; 5.15 – 9.15; 9.16 – 5.14; 5.15 – 9.15; 9.16 – 5.14; 5.15 – 9.15; 9.16 – 5.14; Year-round; Year-round; 5.15 – 9.15; 9.16 – 5.14; Year-round; Year-round; 5.15 – 9.15; 9.16 – 5.14 % Diverted: 96; 97; 98; 96; 93 Increased Diversion %: 6-38; 20-43; 10-17; 14-21; 3-8; 3-8; 3-8; 3-8; 3-8; 3-8 Table 2 (below) contains data on fish distribution and relative abundance in the vicinity of project diversions for streams with minimum bypass requirements as summarized from DEIS Chapter 3 section 3.9.5.1. Several sources of data were reported in the DEIS. Fish/Ha is used here because it is the most consistent data reported for streams of interest. Information on fish assemblages relative to density estimates is uncertain. Sculpin were often sampled and are likely included in any fish densities reported. The DEIS (under General Observations on page 3-231) draws very little in the way of conclusions from the fish sampling data presented other than to say that some diversions have succeeded in protecting upstream cutthroat populations from being overwhelmed by brook trout. Looking at this summary of the fish sampling data presented in the DEIS, it is apparent that reliable, replicated data on fish distribution and density is not available and is needed in these streams to be able to adequate evaluate the effect of the project on fish populations. For instance, in the preceding table, for streams with mandatory instream flow requirements, there are no data whatsoever on fish populations upstream of the diversion sites for 4 streams. On another stream, Vasquez Cr., although fish were present, there is no density information. On three other streams, fish populations upstream of the diversion sites are lower than downstream even though flows are higher. When the information gaps are coupled with the inconsistencies in the data presented, the USFS questions how the DEIS can basically conclude that the increases Page 16 of 68	to long-term future demands because of the different conditions likely to exist. The need for the Project, as described in the EIS, is not limited to the output of the Moffat WTP. The projected supply shortfall is described in Chapter 1 (Purpose and Need) and is based on a number of factors, including demographic growth, conservation savings, natural replacement of plumbing fixtures and special commitments to deliver water to entities both inside and outside Denver Water's Combined Service Area. If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, the Corps believes it is a reasonable and conservative approach to include the 3,000 AF in the predicted 2032 demand in the analysis. ***Comment #738-55*** *(ID 3533)**:*** *The effects analysis of sediment transport and channel morphology impacts is incorrect: This analysis must include consideration of Phase II bedload transport rather than simply accounting for bed surface fines. Phase II transport involves the partial mobilization of the bed material and is a critical component of channel maintenance (Schmidt and Potyondy, 2004). Moreover, the bed material characterizations used a method that was incorrectly applied. Estimates of a channel's available sediment need to consider subsurface materials which a pebble count would not reveal. Results and conclusions are also based on incorrect interpretations of information contained in published USFS research papers. The watershed sediment "supply" equations used are in fact sediment discharge equations and fail to characterize watershed sources of sediment.*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project in diversion proposed by DW with no additional mitigation such as screening at project diversion sites can be expected to have no adverse affects to fish in affected streams **Table 2. Fish distribution and abundance, summarized from DEIS, 3.9.5.1.** Stream Reach: Above Diversion — Fish Species / Fish/Ha; Below Diversion — Fish Species / Fish/Ha Fraser R.: Brook trout (dom.) Cutthroat trout / 437; Brook trout (dom) Brown, rainbow / 456-2440 St. Louis Cr.: Brook trout (dom.) CR Cutt / 797; Brook trout / 646-5231 Vasquez Cr.: Brook trout / NA; Brook Trout (dom.) Cutt, Rainbow / 1017 Hamilton Cr.: Cutthroat / 456-1823; Brook trout / 484 Cabin Cr.: Cutthroat / 257-2088; Cutthroat / 269-2419 Ranch (Main): No data / No data; Sculpin (dom) Brook, Rainbow, Brown / 133-1615 Trail Cr: No data / No data; No water / No water Hurd Cr.: No data / No data; Brook, Brown Tr. / 0-5745 Little Cabin: No fish / No fish; No fish / No fish Meadow Cr.: No data / No data; Brook Trout Brown Trout / 252-74,371 Little Vasquez Cr.*: CR Cutt / Avg.=27; Brook trout / Avg=3471 *No minimum bypass flow requirement *Page 3-228, North Fork Ranch Creek:* Fish presence determination made from no sampling effort upstream of the diversion. According to Hirsch et al. (2006), a document cited throughout the DEIS, North Fork Ranch Creek is a conservation population of CRCT; therefore, it seems that fish should be present somewhere in the drainage. *Page 3-228, Main Ranch Creek:* "No data available upstream of the diversion." This data gap should be addressed in subsequent analysis. *Page 3-229, South Fork Ranch Creek:* The ACOE states, "The diversion… apparently hasn't isolated cutthroat trout." While this may be true, a rock diversion dam was built in 2005 upstream of the DW diversion to improve blockage of brook trout. Data is available from CDOW since 2005 to assess the effectiveness of this barrier. Sampling should occur both downstream and upstream of the diversion structures in streams with water. Meadow Creek supports a robust population of brook trout from the diversion up to the spillway of the reservoir. For Hamilton and Cabin Creek, it should be disclosed that the diversion dam has acted as a barrier to invasion by brook trout like as with the discussions about Little Vasquez and South Fork Ranch Creeks? Page 17 of 68	**Response #738-55:** Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply was found to be related to flows. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results are provided in FEIS Sections 4.6.3 and 5.3. Additional assessments were conducted for the FEIS and included sensitivity analysis of sediment supply and sediment transport equations. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. Discussions on USFS and other research related to sediment transport and the response of mountain stream systems to diversions was added to FEIS Section 4.6.3. ***Comment #738-34*** *(ID 3532)**:*** *Mitigation: All agreements with other entities to mitigate the effects of the project should be shared in the EIS in order for the effects to be assessed. The mitigations included in the DEIS, do not offset potential impacts and are not sufficient. For example, several of the affected channels on the west slope are proposed by the State for the 2010 303(d) listed (temperature impairment) streams.*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *Page 3-231, Comments on the ACOE General Observations:* The DEIS states, "Fool, North Fork Ranch, and South Fork Ranch creeks were dry downstream of the diversions at the time of sampling in 2005. This indicates these streams are incapable of maintaining viable, reproducing populations of fish." This statement contradicts page 3-223, paragraph 4, lines 1-4 where the DEIS states, "In "severely" diverted streams with flow reductions of more than 90%, there are sections just downstream of the diversion that may be dry…fish are *probably* excluded." The DEIS states: "Several other streams had water, but no fish present." Explain why fish wouldn't be found, especially brook trout as they are found virtually everywhere. "The Colorado River cutthroat trout populations in Hamilton, Vasquez, and Little Vasquez creeks are considered genetically pure, while those in Cabin, South Fork Ranch, Jim, and Trail creeks are known to be hybridized with either rainbow trout or other cutthroat trout subspecies (Young et al. 1996)." This statement is incorrect for the following reasons: • The distinction of genetic purity in cutthroat trout is not critical to this analysis. Cabin and South Fork Ranch are hybridized with greenback cutthroat trout only; therefore, it doesn't make them less important as compared to those hybridized with rainbow trout or Yellowstone cutthroat trout. This discussion continues throughout the DEIS as if to imply that those streams are less important and those fish inferior. • In the references, Hirsch et al. (2006) was cited. This citation should be used in the discussion of Colorado River cutthroat trout populations found within the DW system. Hirsch et al. (2006) is the most up to date assessment available, while Young et al. (1996) is outdated. Hirsch et al. (2006) should be used in CRCT discussions. • Trail Creek is not within the DW collection system and therefore should not be referenced when discussing creeks that contain cutthroat trout. The ACOE has direction from the US Fish and Wildlife Service (FWS), like the rest of the other federal agencies, to treat fish that have been designated Lineage GB (Metcalf et al. 2007) as greenback cutthroat trout. There are a number of Lineage GB populations found outside their historic range within DW's operational boundary. Although some have very recently been designated as Lineage GB, a couple of populations have been designated since 2007 and 2008, before both the BA and DEIS were written. *Page 3-231, Benthic Macroinvertebrates under General Observations:* The DEIS states: "Fool, North Fork Ranch, and South Fork Ranch creeks were dry downstream of the diversions at the time of sampling in 2005. This indicates these streams are incapable of sustaining robust, perennial benthic invertebrate communities." This statement is in conflict with what is written on page 3-223. *Page 3-232, Habitat:* There is no discussion of PHABSIM results for juvenile trout in regard to optimum flows and maximum habitat availability for this lifestage. Fraser River tributary names are inconsistent between habitat and fish sections and incorrect in some places. The discussion of benthic macroinvertebrates is misleading. High densities and high numbers of taxa do not necessarily represent a healthy stream, depending on what species are found there. Page 18 of 68	**Response #738-34:** The Corps will include specific mitigation measures that are enforceable through a Section 404 Permit, if issued. CDPHE will also include specific water quality mitigation measures that are enforceable through a Section 401 Certification. USFWS will include specific requirements to protect threatened and endangered species that are enforceable through a Biological Opinion. In addition, Denver Water has entered into three agreements that would enhance the existing environment and provide additional protections: Colorado River Cooperative Agreement, Learning by Doing (LBD) Cooperative Effort, and Fish and Wildlife Enhancement Plan, copies of which are provided in FEIS Appendix M. Each of these plans will be implemented through permanent agreements between the parties. The Corps will consider these agreements, along with all RFFAs in its decision process regarding the proposed Moffat Project. These agreements are not intended to mitigate the impacts of the proposed Project; instead, the purpose is to improve existing conditions of aquatic environments in the Colorado River Basin should Gross Reservoir be enlarged. ***Comment #738-262*** *(ID 5403)**:*** *Water losses associated with an enlarged Gross reservoir area: Evaporative losses for an enlarged Gross reservoir appear to be erroneously low. Although there is a brief mention in the groundwater effects section, the document does not quantify changes in bank storage at an enlarged Gross reservoir and increased transmission losses in the project conveyance system. This information is needed to assess the efficiency of alternatives in terms of water use.* **Response #738-262:** Monthly net evaporation rates for reservoirs are an input to the PACSM. During simulation, at the end of

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Certain species are more tolerant of changes in flow and water quality, and it would be important to present that information as to what species are found where and to make comparisons between upstream and downstream of diversions. *Page 3-234, Habitat –Little Vasquez Creek:* There is a bypass flow agreement of 0.5 cfs with Grand County Water and Sanitation District. The DEIS doesn't disclose this information. *Page 3-234, Habitat – Meadow Creek:* No mention is made of the reservoir upstream nor how the operation of the reservoir affects available fish habitat. The existing condition of fish habitat below the reservoir and below the diversion should be addressed. Section 3.9.5.2, page 3-235, Williams Fork River: Known Lineage GB populations since 2007 are documented to be present in the Upper Williams Fork. This should be identified in the DEIS. *Page 3-236, Williams Fork Tributaries:* "For invertebrates and habitat, potential effects would only occur downstream of the diversions and only the information for these sections of the Fraser River tributaries is described.: This is not accurate as the discussion of the tributaries includes upstream and downstream information. *Page 3-238, General Observations for Williams Fork River Tributaries*: The DEIS should include updated records for genetics results in the Williams Fork. There is no discussion of how DW operations have impacted Bobtail Creek downstream of the diversion. Figure 3-9.2 (p. 3-247) illustrates the habitat-flow relationships for brown trout, the dominant species in the North Fork. As flows exceed 200 cfs, habitat availability for all life stages declines. In a fishery that is self-sustaining and maintained largely by natural reproduction, loss of habitat for early life stages is particularly detrimental. We understand that mitigation has been proposed; however, based upon the data and modeling presented in the DEIS we believe that the effects of increased flows will be more than moderately detrimental to the trout fishery. Accordingly, we are concerned about the impacts to the "quality" of recreational fishing on National Forest System (NFS) land. Section 3.13.5.6, North Fork South Platte River: The DEIS (p. 3-285) states that on the North Fork of the South Platte "The quality of fishing on segments open to the public is relatively poor and overall use is low." We would like to point out that recreational fishing is important on NFS land and that some areas experience relatively heavy recreational use by anglers (e.g., vicinity of AG Ranch). While the mainstem may have a higher "quality" fishery, the North Fork is also an important recreational fishery. **Chapter 4** *General Comment:* No analysis was found in this chapter for USFS Sensitive or rare/local concern plant species. Analysis of effects to these species should have been included under Section 4.5 Vegetation, Section 4.8 Special Status Species, or both. This is particularly important because populations of several USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense will be inundated with proposed Gross Reservoir expansion, which is expected to compromise viability for several plant species. There Page 19 of 68	each time step, the current evaporation rate for a given reservoir is multiplied by the reservoir's surface area in that time step. The average annual evaporation loss is the average total volume of evaporation, accumulated over all time steps within a year. "Normalizing" the evaporation by dividing annual evaporation volume by the reservoir's surface area when full does not yield the net evaporation rate because it does not take into account fluctuating reservoir content or the curvilinear relationship between content and surface area. The annual net evaporation rates used in the model were as follows: • Gross Reservoir – 16.65 inches. • Williams Fork Reservoir – 30.51 inches • Dillon Reservoir – 23.92 inches • Wolford Mountain – 22.64 inches Net evaporation rate supplied to the model is calculated outside the model as gross monthly evaporation, less a portion of monthly precipitation. The gross evaporation rates that Denver Water uses to represent its own reservoirs (including Gross, Dillon, and Williams Fork) were based on two studies done by the U.S. Geological Survey (USGS): 1. Evaporation from Seven Reservoirs in the Denver Water-Supply System. Central Colorado, USGS Water-Resources Investigations 76-114, April, 1977. 2. Reservoir Evaporation in Central Colorado. USGS Water-Resources Investigations Report 83-4103, 1983. To represent evaporation at Wolford Mountain Reservoir, the Colorado River Water Conservation District uses a procedure devised by the State Engineer's Office (SEO). The SEO procedure first

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project are no additional available reports or other documentation of analysis of effects to individual plant species other than federally listed plant species. Section 4.0, Page 4-1, Introduction, paragraph 2: Limiting the environmental impact of the proposed Moffat Project to existing conditions is inadequate as it does not address how existing operations have affected stream channels. The impacts of existing operations on channels are needed to provide context to the possible impacts caused by the proposed action(s). The nature of channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions such that similar changes in inputs can produce different channel adjustments in different reaches. Is this a baseline issue? *Page 4-6, item 1:* The decrease in flows in the Fraser River and Williams Fork River basins in average and wet years needs to be specified and compared to existing operations and natural flow conditions. *Page 4-6, item 4:* The text describes that discharges from the Moffat Tunnel are capped to limit the flow in South Boulder Creek to 1200 cfs. The capacity of the Moffat Tunnel should be described. The increase in flows (and duration) in South Boulder Creek upstream of the reservoir in average and wet years needs to be specified and compared to existing operations and natural flow conditions. *Page 4-8, Water Quality Section, bullet two:* The statement that stream temperature will only be increased in Ranch Creek is false and misleading as other sampling sites not studied may have elevated temperatures during average and wet years because of the reduction in flows from the proposed action(s). *Page 4-9, Floodplain Section, bullet two:* The decrease in peak flows in the Fraser River and Williams Fork River basins in average and wet years needs to be specified and compared to existing operations and natural flow conditions. *Page 4-9, Stream Morphology and Sedimentation, bullet one:* *C. Transport Capacity, Sediment Supply, and Effective Discharge:* The relations between transport capacity and sediment supply are poorly described. The premise that the morphology of a channel will not change because transport capacity is considerably greater than sediment supply from the proposed flow changes is incorrect. Existing channel morphology reflects that it is in balance or in dynamic equilibrium with the current flow and sediment regime. Just because transport capacity remains greater than sediment supply when peak flows are reduced during average and wet years does not necessarily indicate morphological channel changes will be minimal to the proposed action. Reducing the frequency of effective discharge and annual transport capacity will eliminate or reduce Phase 2 sediment transport, which is critical for creating and maintaining channel form. Page 20 of 68	estimates average annual free water surface evaporation from the Evaporation Atlas for the Contiguous 48 United States (National Oceanic and Atmospheric Administration Technical Report National Wild and Scenic Rivers System [NWS] 33, June 1982). The annual free water surface evaporation rate is converted to monthly values by a monthly distribution. The Corps believe these are the best available sources for site-specific information on evaporation rates. In fact, of these four reservoirs, Gross Reservoir has the smallest annual gross evaporation despite being lower in elevation, as shown in the table below. Gross evaporation rate is offset by precipitation during the evaporation season, to produce net evaporation rate. Precipitation estimates for PACSM were based on historical climate observations at nearby stations. Average annual precipitation for Gross Reservoir is higher than average annual precipitation at the other three reservoirs. • Gross Reservoir Annual Gross Evaporation (inches/year) = 27.12 • Gross Reservoir Annual Precipitation (inches/year) = 21.51 • Williams Fork Reservoir Annual Gross Evaporation (inches/year) = 37.80 • Williams Fork Reservoir Annual Precipitation (inches/year) = 15.36 • Dillon Reservoir Annual Gross Evaporation (inches/year) = 30.72 • Dillon Reservoir Annual Precipitation (inches/year) = 15.12

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project The elimination of frequent, moderate flood events in the proposed action, which are generally considered to determine channel dimensions and form, can cause pools to become shallower as they fill with sediment and channels to gradually narrow as riparian vegetation becomes established along the channel margins (which will be more apparent and likely in low gradient, unconfined channels). Infrequent, large floods during wet water years may be unable to remove the established vegetation. Frequent, moderate floods are necessary to prevent fine sediments from infilling pools and colonization of riparian vegetation along channel margins. At several of the sampling sites sand deposition was observed and considered an indicator of potential aggradation (see sampling site descriptions in section 3.1.6.1 and 3.1.6.2). The proposed reduction in peak flows during average and wet water years will exacerbate sand/fine gravel deposition and channel aggradation. The study design to assess the impacts of changes in sediment transport capacity on channel morphology is not well described in the DEIS. Some of the concerns with the analyses and interpretations are: 1) Sediment supply estimates from the Two Forks EIS (Simons and Associates, 1986) are not justified. If the sediment supply equations from the Two Forks EIS are to be used in this DEIS, the relevant assumptions, channel geometry, sediment transport data, and results from that study should be provided in this DEIS. One cannot objectively evaluate how the sediment supply data and results from the Two Forks EIS apply to this study or if the sediment supply equations drawn from the Two Forks EIS were appropriately applied here. 2) What is important from a channel morphology perspective is how the mobilization of D50 and greater size particles are effected by flow alterations (Phase 2 sediment transport). Reducing the frequency of Phase 2 sediment transport could have an adverse effect on channel morphology. 3) Transport capacity needs to be assessed at discrete particle size intervals. No data were provided for the transport capacity of discrete particle size intervals at different flows (total load only presented). 4) The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, mountain channels composed of gravels, cobbles, and boulders. Channel beds are considerably coarser and steeper than the studies used to develop that equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate. 5) Field data were not collected to "calibrate" the quantity and size of bedload being transported at different discharges. 6) Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an appropriate bedload transport equation is used. As such, results from such studies should be used with caution when predicting potential channel responses. *D. Assumptions Used to Model Flow Hydraulics and Transport Capacity in HEC-RAS:* The assumptions used to model flow hydraulics and transport capacity using HEC-RAS were not presented. The general limitations of HEC-RAS to model flows and transport capacity in steep, Page 21 of 68	• Wolford Mountain Reservoir Annual Gross Evaporation (inches/year) = 28.27 • Wolford Mountain Reservoir Annual Precipitation (inches/year) = 11.60 In 2009, Denver Water reviewed the precipitation estimates using spatial analysis, developing isohyetal mapping for the PACSM domain to transfer observed climate data to reservoir sites. The exercise yielded similar results, with Gross Reservoir having the greatest amount of precipitation among these four reservoirs. Annual net evaporation is not the same as the difference between "Annual Gross Evaporation" and "Annual Precipitation," because for months in which precipitation exceeds monthly evaporation, net evaporation is set to zero. Since gross evaporation is typically zero during winter months, winter precipitation reflected in the "Annual Precipitation" is not reflected in the "Net Evaporation." ***Comment #738-78*** *(ID 3546)**:*** *Reduction in the number of days at or above effective discharge in affected streams is objectionable: Available research supports the importance of maintaining high flows in these steep, coarse grained stream channels. It appears that the planned flow diversions will siphon off the range of flows most critical to maintaining the form and functions of streams in these watersheds. There is a need to provide over the long term, the same average number of days of effective discharge as pre-diversion period to maintain channels. This means that during the "wet months of wet years", high flows must be provided in these channels rather than entirely diverted. The assertion that the remaining high flows can be diverted without affecting channel morphology counters published research results and is not supported by conditions in the field. See Grand County Stream management*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project forested, mountainous channels were not discussed. The limitations of using flow hydraulics and transport capacity output from HEC-RAS to assess channel impacts and responses to flow alteration were not discussed. Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an appropriate bedload transport equation is used (the Meyer-Peter Müller equation was not an appropriate choice). Sediment sampling data should be used to calibrate sediment transport equations. Whenever possible, the use of measured sediment loads for testing and calibration of the equations is preferred. Additionally, because pebble counts tend to be biased towards larger particle sizes and underestimate the presence of smaller size fractions in the channel bed, not collecting subsurface data as was done in this study will further reduce the accuracy of sediment transport capacity estimates. Need to illustrate the flow scenarios to the proposed action on cross sections to illustrate how water-surface elevations relate to existing morphological features. Water surface elevations of the natural flow regime and the existing flow regime should be illustrated on the cross sections as well so that the changes can be visually compared. *Page 4-9, Stream Morphology and Sedimentation, bullet two:* "However, for the range of flows expected, sediment transport capacity exceeds available sediment supply and, for all but the smallest flows, sediment transport capacity is orders of magnitude greater than available sediment supply." This statement does not accurately reflect conditions on the ground. It would seem that if sediment transport capacity was orders of magnitude greater than sediment supply, streams should be actively incising. That is, streams should be seeking sediment to transport by eroding their beds and banks. However, on the ground inspection indicates that the only streams that are incising or have incised are those that have been subject to augmented flows, South Boulder Creek and sections of Vasquez Creek. "All alternatives would result in changes in flow during average and wet conditions and then primarily during the wettest months of the year; therefore, reductions in sediment transport capacity resulting from the alternatives are expected to have negligible impacts on channel morphology." This assertion is counter-intuitive. Frequent high flows, with recurrence intervals of 2-10 years are the flows that transport the most sediment (e.g. effective discharge). These are the flows that occur during the runoff months, particularly on average or wet years. It would appear that reduction of these flows would have the greatest impact on morphology, not negligible impact as is stated in the document. *Page 4-9, Stream Morphology and Sedimentation, bullet three:* "Locations along the Fraser River where traction sand currently increases the natural sediment supply are and would remain the most susceptible to local deposition. Any deposition that occurs should be limited in extent and magnitude and should pose only minor changes to channel morphology." Show how the conclusions of the stream morphology assessment were considered in the assessment of fish and aquatic life. Show how "local deposition" affects fish and aquatic habitat in these locations. Page 22 of 68	*plan for recommended flow regimes as potential mitigation. This may become even more important in the future. In an atmosphere of changing climate and projected decreases in snowpack, the likelihood of wet years where the high flows are by-passed is further diminished.* **Response #738-78:** Sediment transport modeling completed as part of the FEIS evaluates the stream's ability to transport its sediment load for both existing conditions and flow conditions assuming the Project is approved. Sediment transport potential for both scenarios was compared with sediment load as one of the tools used to anticipate changes in stream morphology. Assessments were also completed using historic photos to better understand past responses of representative stream segments to flow diversions as a way to better understand possible impacts of additional future diversions. Existing published research related to the stream's response to diversions has been summarized in the FEIS. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-25*** *(ID 3545)**:*** *Changes in flood risk: Need information, preferably mapping on expanded flood zones below an enlarged Gross (in event of dam failure).* **Response #738-25:** The proposed design for raising Gross Dam and increasing the storage capacity of Gross Reservoir is subject to FERC's dam safety criteria as provided in FERC's Engineering Guidelines for the Evaluation of Hydropower Projects. Project designs must meet criteria governing the safety and adequacy of project features. Risk reduction measures may be incorporated in the design alternatives considered

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *Page 4-9, Stream Morphology and Sedimentation, bullet four:* This statement is incorrect. Flow would increase in Vasquez Creek downstream of the Gumlick Tunnel outflow. There is no discussion of the potential impacts of increased flow on channel morphology along Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek. *Page 4-10, Description of the Model:* We are not familiar with the DW's Platte and Colorado Simulation Model (PACSM). The assumptions and limitations of the model should be reviewed and evaluated to its application to the proposed project. *Page 4-15, Sampling Sites:* The process used to select sampling sites is not explained (See comment A). Because more sensitive reaches (pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. Since more sensitive reaches are underrepresented and more likely to undergo morphological change to the proposed flow changes, the selection of sampling sites (pool-riffle channels or Rosgen C type channel) appears to be biased. If the Two Forks EIS is used to draw conclusions for this project, the relevant assumptions, data, and results used in that study should be provided in this EIS. One cannot objectively evaluate how the data and results from the Two Forks EIS apply to this study or if the conclusions from the Two Forks EIS were appropriately applied here. In other words, the extrapolation and use of the conclusions from the Two Forks EIS to this study is not reasonable based on the information provided. *Page 4-16, Hydraulic Modeling and Sediment Transport Capacity:* Relevant hydraulic modeling and sediment transport capacity results from the HEC-RAS modeling performed by ERC (2006) should be included in the EIS so that those data can be evaluated independently. Moreover, the relevant assumptions and input data used for modeling flow hydraulics and transport capacity should be provided so that the use of the model can be objectively evaluated. The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, forested, mountain channels. Channel beds in the project area are considerably coarser than the particle size limits used to develop the equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate. *Page 4-17, Hydraulic Modeling and Sediment Transport Capacity:* Fractional transport capacities for all grain sizes should be presented so that the mobilization of coarser particles (those greater than the D50 percentile particle size) can be evaluated for different discharges and flow alteration scenarios. By only reporting the total bedload transport capacity, the movement of the coarser particles, which is important for controlling channel form and processes in steep, coarse-bed channels, cannot be evaluated to assess how its mobilization will be impacted. The particle size break between phase 1 and phase 2 transport is not necessarily 4 mm. The basis for choosing the 4 mm particle size break needs to be explained and supported based on field data. Page 23 of 68	for dam modification. Although no flood mapping was done in preparing the DEIS for any dam failure scenario for the enlarged reservoir, the existing high hazard potential Gross Dam is currently subject to 18 CFR Part 12, Subpart C, Emergency Action Plans (EAPs). An EAP is a formal document that identifies potential emergency conditions at a dam and specifies pre-planned actions to be followed to minimize property damage and loss of life. It contains information and procedures for the issuance of early warning to responsible downstream emergency management authorities. In addition, the EAP contains inundation maps that show the critical areas that may be impacted as a result of a dam emergency. It is expected that revisions to the EAP and inundation maps will need to be made due to the proposed dam raise. ***Comment #738-35*** *(ID 3541)**:*** *Effects on Floodplains: The analysis of effects to floodplain/riparian vegetation on the west slope is insufficient. Explain how floodplains will get smaller due to either vegetation invasion due to dewatering or lack of flooding. For example, the floodplains are expected to be "smaller in area" when in fact they may disappear altogether since they would no longer be inundated in relatively frequent events (1.5 year RI) or greater than bankfull channels. Reducing the energy available for lateral migration will reduce the formation of new lateral accretion formed floodplains in C channels.* **Response #738-35:** This information is provided in DEIS Section 4.6 (Riparian and Wetland Areas), including the Introduction and Section 4.6.1.2. An analysis of the change in extent and height of the two-year flow was made at each of the twelve study sites. The two-year flow generally correlates with bankful conditions.

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project The relevance of of using the 4 mm (fine gravel) particle to determine a threshold discharge is unclear. Flow alterations that reduce flow will change flow patterns associated with the complex bed topography in steep mountainous channels, change fine gravel and sand deposition patterns, and cause deposition in pools. *Page 4-18, Sediment Supply:* What is the standard error associated with the sediment supply equations listed in Table 4.1-1. *Page 4-19, Effective Discharge:* Provide references to studies that support the statement *"However, particularly in sediment-limited systems, changes to effective discharge do not necessarily correspond to changes in channel morphology."* *Page 4-20, Effective Discharge:* Because the Meyer-Peter Müller equation was used to calculate bedload transport capacity and its limitations in steep gravel-, cobble-, and boulder- bed channels, effective discharge results and conclusions with regard to channel impacts are of questionable validity. *Page 4-20, Impacts Analysis:* The statement, *"In mountain streams, sediment transport capacity typically greatly exceeds sediment supply and as a result sediment entering the system is transported out of the system; deposition does not occur."*, is incorrect. Deposition does occur. Reach descriptions for the Fraser River and Williams Fork River sampling sites discuss sand and fine gravel deposition and it being a potential indicator of aggradation. It is likely that sand and fine gravel deposition will be exacerbated under the proposed action as increased diversions in average and wet water years will further reduce peak flows that are already limited by existing operations. *Page 4-21, Impacts Analysis:* The third bullet (increase in transport capacity when transport capacity exceeds sediment supply) applies to Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek. This impact needs to be assessed. Section 4.1, Surface Water: *General Comments:* Section 4.1 and 4.13 - There is no disclosure of the impacts to water levels during peak diversion season (summer months) in Dillon and Green Mountain Reservoirs. The White River National Forest has significant investments in recreation facilities and associated infrastructure at these reservoirs. Additionally, planning is underway to construct a boat ramp on Green Mountain Reservoir and there is concern that any design of the boat ramp factor in the direct, indirect, and cumulative effects of the Project. A 45-year average makes it difficult to comment on potential impacts to recreational opportunities and facilities and Dillon and Green Mountain Reservoirs. The White River National Forest and the Bureau of Land Management are preparing a Wild and Scenic River (WSR) eligibility analysis of segments of the Colorado River. As part of this effort, a stakeholders group has been formed to offer an alternative to the Wild and Scenic designation whereby streamflow rates associated with ORVs are maintained along with current and future consumptive uses of the Colorado River. DW is an active participant in this stakeholder's process. Page 24 of 68	Reductions in the volume of the two-year flow may reduce both the wetted area and the depth of water in the stream, which could cause the stream to narrow. Projected changes in two-year flow elevation and stream width are provided in FEIS Table 4.6-4. An analysis of the effects of changes in flows of greater than two-year intervals has been added to the FEIS Section 5.8.1.2, including changes in width of the active floodplain. ***Comment #738-36*** *(ID 3542)**:*** *Alternative effects on Hydrology: Supplemental environmental analysis should be conducted to compare the Project alternatives for temperature, sediment, nutrient and chemical impairment. This work should include modeling that evaluates changes in concentration throughout the system, accounting for water quantity decreases and increases from both diversions and tributaries.* **Response #738-36:** The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. Additional water quality analyses were performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. This additional analysis includes a more detailed evaluation of effects on temperature, effects of the Moffat Tunnel

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project The Moffat Project DEIS does not disclose clearly how this project would affect historic (i.e. past), current and future flows in the Colorado River. It also does not clearly disclose direct, indirect and cumulative impacts to the ORVs identified along the Colorado River. This DEIS should clearly disclose daily flow impacts under each of the impact-related time frame definitions used in the DEIS (see page 4-1, first three bullet statements). These impacts must be disclosed for each WSR segment on the Colorado River currently under analysis. Section 4.1 - The DEIS includes a discussion regarding flow impacts in terms of average annual flows and monthly average flows. It also needs to include impacts to daily flow rates (wet, average and dry years) critical to natural and recreational resources. The flow rate graphs in Appendix H are helpful but average daily flow rates must be clearly disclosed in a table and explained in text of the DEIS. Section 4.1: "North Fork South Platte River Stream Flow – Changes in North Fork South Platte River flows under Full Use Existing System would be due to DW's additional transbasin diversions through Roberts Tunnel. As shown in Tables H-1.1, H-1.2, and H-1.3, average, dry, and wet year average annual flows in the North Fork South Platte River below Geneva Creek gage would increase by 26,300 AF or 22%, 33,200 AF or 22%, and 19,500 AF or 20%, respectively. Flow increases are commensurate with increases in Roberts Tunnel diversions and would occur year-round but would be greatest from June through October. Table H-1.44 summarizes average monthly flows in the North Fork South Platte River below Geneva Creek gage for average, dry, and wet conditions." Flow modeling was used to compare the 2006 conditions with the Full Use Existing but no flows or effects on geomorphology were used to describe the 2030 Full Use Proposed flows. PACSM was utilized to evaluate the proposed actions, but it is necessary to characterize the existing conditions as well. The DEIS needs to account for downstream user diversions, especially in months and streams where flows are going to be reduced. The increased flows described above are for annual flows, not monthly flows. This is misleading and there will be periods of decreased flows. The USGS gages used for comparison are above some of the downstream users and at very limited locations along the system. How will instream flows vary downstream from the gage? For example, how will flows be affected by downstream diversions depending on different priority schemes and how will these variations affect habitat and fish? The analysis needs to characterize effects to these tributaries. In chapter 4 and Appendix H the following is presented in the DEIS: "Three different impact assessment comparisons are made in the EIS: • Impacts to water-based resources resulting from anticipated hydrologic changes between Current Conditions (2006) and Full Use of the Existing System (2016), with no Moffat System Project, are disclosed. • Then, water-based resource impacts are compared between conditions at the time of Full Use of the Existing System (2016) and those at the time of Full Use with Project (2030)." Page 25 of 68	discharge, and potential changes in nutrient concentrations and loading. ***Comment #738-4*** *(ID 3543)**:*** *Effects to Arapaho National Recreation Area reservoir water quality: The DEIS needs to include a discussion in the cumulative effects section regarding effects to water quality as weed/algae control and clarity (Grand Lake) are existing issues. Table 1-2 fails to mention other common means for extending the use of supplies such as wastewater recycling for domestic use.* **Response #738-4:** Additional water quality analysis has been performed on the Fraser River and the Three Lakes area (only Granby and Shadow Mountain of the Arapaho National Recreation Area lakes are affected by the C-BT pump back). Please refer to FEIS Sections 4.6.2 and 5.2. Wastewater recycling was not included in DEIS and FEIS Table 1-2 since it is not a conservation measure. All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's system supply and reduces the amount of water diverted from other components of the system. The main sources of reusable water in Denver Water's Collection System are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek system (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Littleton–Englewood Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project The FS is interested in impacts to water-based resources and water-based resource impacts for all scenarios. The impacts to water-based resources are not described for the Full Use with project. Also, the water-based resource impacts are not fully identified for the existing conditions, 2006. Other water users in the system will influence cumulative effects. Need to describe effects on aquatic habitat, organisms and morphology based upon scenarios where other users in the system are in or out of priority for their water rights. "Flows in the North Fork South Platte River would decrease on average during winter months and increase during summer months. While flows would increase on average during summer months, there would be no change in the maximum flows experienced because DW operates their system in a manner to keep the average daily flow in the North Fork South Platte River below 680 cfs at Grant and below 980 cfs above the confluence with the mainstem (Yevdjerick and Simons 1966 and 1967)." The FS is concerned about the timing and quantities of water being proposed for conveyance through the North Fork of the South Platte River and the South Platte River. This conveyance can affect the dimension, pattern, profile of the streams and impact aquatic and riparian habitat. Can water be moved to mimic periodic natural peak flows? A hydrograph that mimics spring floods during the wettest months of the year would help maintain channel morphology. Is degradation to channel morphology currently occurring at the flows described above? The FS would like to see bank erosion measurements and summaries of the existing aquatic habitat for all affected stream reaches on the Forests. "Floodplains in North Fork South Platte River and South Boulder Creek above Gross Reservoir are unchanged by alternatives because imports through Roberts Tunnel and Moffat Tunnel are managed to stay within the channel. Floods can occur in these basins due to local snowmelt or precipitation, but not due to the changes in the Moffat Collection System."Show at what frequency bankfull flows are released through the system in order to maintain stream channel dimensions and habitat. *"Antero Reservoir to Cheesman Reservoir:* In the upper South Platte River, changes in flows under Full Use Existing System would be due to DW's increased demand and changes in the timing of any amount of reservoir releases. Changes in reservoir releases under Full Use Existing Conditions would differ depending on storage conditions in DW's north and south systems and hydrologic conditions." "Although DW has the ability to reduce bypass flows below Eleven Mile Canyon Reservoir they have not exercised that right to date. Reductions in bypass flows below Eleven Mile Canyon Reservoir were not included in PACSM." This stretch of the South Platte River was 303(d) listed sediment and temperature. Instream restoration has been completed to work towards the TMDL compliance. Show how the Page 26 of 68	flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in FEIS Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,555 AF/yr. Refer to FEIS Section 1.3.1. ***Comment #738-24*** *(ID 3544)**:*** *Arapaho Roosevelt, Pike and San Isabel, and White River Forest Plan direction: The Land and Resource Management Plans (aka Forest Plans) for the affected Forests are only mentioned in relation to Visual Resource Objectives. The DEIS is silent on any other Forest Plan requirements. The Moffat system and effects from the use of the Moffat system occur on public lands. Therefore, the DEIS must incorporate standards, geographic and management area direction and show how forest plan direction would or would not be met under the proposal.* **Response #738-24:** The Moffat Project potentially affects national forest lands in four national forests: (1) Arapaho National Forest (portions of the Moffat Collection System on the West Slope), (2) White River National Forest (Dillon Reservoir area on the West Slope), (3) Roosevelt National Forest (Gross Reservoir on the East Slope), and (4) Pike-San Isabel National Forest (portions of the South Platte Collection System on the East Slope). The Corps evaluated consistency with the USFS Forest Plans where there were proposed ground-

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project reduction in bypass flows or the other proposed flow regimes would affect the sediment standards and other water quality standards that the CDPHE enforces. "To assess the impacts of changes in sediment transport capacity on channel morphology, calculated bedload capacity was compared to anticipate sediment supply at representative sampling sites along the Fraser River, St. Louis Creek, Ranch Creek, Williams Fork River, Colorado River, South Boulder Creek, and North Fork South Platte River. Given the minor flow changes predicted in the Blue River and South Platte River, impacts to channel morphology under the alternatives along these rivers are predicted to be negligible." There needs to be a summary of existing sediment yield and sediment supply and comparison with Full Use Existing and Full Use Proposed sediment modeling. Show the effects of increased shear stress on lateral migration or bedload transport. The South Platte between Elevenmile Reservoir and Strontia Springs Reservoir has been impacted by increased sediment from several large wildfires. Display how increased sedimentation has been quantified and modeled under the various flow regimes. "Under all alternatives, increases in flow would result in an increase in sediment transport capacity along South Boulder Creek and the North Fork South Platte River. It is possible that the increase in sediment transport capacity in these basins could lead to minor localized bed and bank erosion." Without a clear analysis of the existing bed and bank erosion, this is simply a narrative statement not supported by modeling. Section 4.1, page 4-9: Summary of major conclusion- stream morphology and sedimentation The statement "All alternatives would result in changes in flow during average and wet conditions and then primarily during the wettest months of the year; therefore, reductions in sediment transport capacity resulting from the alternatives are expected to have negligible impacts on channel morphology." is incorrect. Based on results from Ryan 1997 (cited in the DEIS), it is the continued provision of the infrequent high flows (5-10 year RI) and sustaining the prediversion frequency of > or = bankfull flows over the long-term that maintains channel morphology. The conclusion that diversion had limited impact on channel morphology was derived under the observation that the high flows had continued to bypass diversion structures with sufficient frequency to maintain the channel configuration in most of the settings evaluated. High flows not only maintain coarse bedload transport through the channel, but also prevent riparian vegetation from invading the channel edges and bars. Without these flows, channels begin to aggrade, insets form, and mobile surfaces become stabilized by vegetation. Under current conditions, DWD has only a limited ability to affect flows with a >10 year RI (See figure 5, Ryan 1997). DW proposes to divert high flows from the wettest months of the wettest years and reduce the frequency of bankfull flows to less than 0.5% of current frequency (from 15 days per year to once every 13 years on the mainstem Fraser for effective discharge) but claims this will have a negligible impact on channel morphology. Even under current conditions where infrequent high flows are provided due to a lack of diversion capacity and the frequency of bankfull flows over the long-term is similar to prediversion conditions, Ryan 1997 noted Page 27 of 68	disturbing activities (refer to FEIS Section 5.16). Forest Plan guidance from the White River National Forest and Pike-San Isabel National Forest relevant to the proposed Project elements has been added to FEIS Section 3.16. This section already included discussion of the Forest Plan guidance for the ARNF. The Corps assumes the USFS will perform its own detailed review of consistency with Forest Plan goals, objectives, standards and guidelines. ***Comment #738-5*** *(ID 3554)**:*** *Cumulative Effects: The cumulative effects analysis is inadequate because it ignores the effects of Denver's existing diversions. Even though the cumulative effects chapter begins by defining cumulative effects as the "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" effects of the existing diversion system are not disclosed or analyzed. This is a major flaw because the existing diversion system is the major existing impact, and its effects are ongoing and widespread. Estimates of unregulated flow of diverted and augmented streams should be included in the analysis.* **Response #738-5:** The Council on Environmental Quality (CEQ) interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project substantial reductions in channel width (35-50%) on St. Louis Creek in channel units that were unconfined (free to adjust). Methodology used in sediment capacity evaluation must be explained more clearly, we are uncertain if sediment transport analysis is for phase I transport only for particles < or = 4 mm. Figures from appendices need to be included in text for ease of location. The analysis should include disclosure of how flow regime changes affects the dissolved (solution) load in affected streams. Section 4.1, page 4-16: The geomorphic literature is very clear in stating that bedload transport is typically energy-limited. The suspended load transport is supply limited. The best example of supply-limit occurs in heavily developed areas with large areas of impervious surfaces, which is not comparable to a forest setting. If bedload capacity far exceeds sediment supply (by orders of magnitude) at all stream locations studied, then why don't the existing conditions of studied stream channels show extreme channel degradation? Contrary to what the DEIS states, research is finding that the channel width and cross-sectional area are reduced and the channel aggrades following flow diversion. The discussion on Page 4-21 regarding a "sediment balance" concept conspicuously fails to mention that when capacity greatly exceeds supply, degradation is the expected outcome. In our experience the Meyer Peter-Muller (MPM) equation does not provide an appropriate estimate of sediment transport in coarse bed channels, but performs better in sand and gravel bed streams. In applying the MPM to the streams covered in the DEIS several of the parameter ranges for the study streams are outside of the MPM function range (particle diameter and maximum channel width), which will lead to questionable results. Recent research has improved our understanding of bedload transport since the 1950's and other more recent bedload transport capacity functions such as the 1990 Parker function must be used to cross-check the MPM for accuracy. For example, the Grand County Stream management plan used the Parker bedload function. The USFS also has a publically available, detailed bedload data record from actual measurements on St. Louis Creek that should be used to validate the MPM sediment bedload equations. While we noticed that the sediment equation results were compared to some published data from St. Louis Creek, we are unsure if the larger data set which includes sediment larger than 4 mm was used or not. This data can be found at the following link: http://www.fs.fed.us/rm/data_archive/dataaccess/FEF_bedload_transport.shtml Section 4.1, page 4-18: The DEIS makes questionable assumptions of sediment supply: under undisturbed subalpine forest conditions, erosion generated by overland flow is rare. However, most of the basins in question are disturbed via development, timber harvest, mining, heavy recreation use, water diversions et cetera. Thus, many of the watersheds are supplying sediment at an accelerated rate so that sediment-rating curves from representative sites in the upper Williams Fork are not appropriate for the more heavily disturbed basins. The sediment "supply" equation used is more representative of wilderness basins with streams transporting mostly suspended and bedload derived from channel margins and bed. The result is that for developed Page 28 of 68	to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversions locations modeled in PACSM. ***Comment #738-88*** *(ID 3555)**:*** *Selection of field sites: The streams sites do not appear to be representative of streams diverted by Denver. For the Fraser basin, all sites selected either have bypass flows or are downstream of a confluence with streams that have bypass flows. This is not representative of the effects of Denver's diversion system. The Fraser diversion system*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project basins, the supply equation under predicts watershed derived loads. Moreover, the supply equations presented are actually sediment discharge equations since they are related to stream discharge. Are the equations based on the assumption that the amount of bedload transported is equal to the sediment load supplied by the watershed? It is uncertain how these equations reflect the supply of sediment to the stream system. For upland sediment supply, try using actual upland erosion models like the USLE or WEPP, data on traction sand application (in the case of the upper Fraser) and sediment delivery ratios for sediment supply estimates instead. In addition, how does DW account for the periodic flushing of accumulated sediment from behind their diversion structures in the sediment analysis? Flow modeling is based on departure from conditions occurring over past 45 years. However, flows have been largely diverted during this time. Additional diversion amounts appear to be small because they are compared against flows that are already depleted. Suggest analysis address the full amount of flow that would be diverted from these systems. Section 4.1.1.1, page 4-30: It appears as if the average annual net evaporative losses predicted from an enlarged Gross are underestimated (~ 33%) as compared to evaporative losses at other reservoirs (DW omitted a digit in their evaporation loss reporting for Gross). If one looks at table H-8.1 and normalizes evaporation losses by surface area, the depth of evaporative losses at Gross, although lower in elevation, are only about 66% of that from higher elevation reservoirs such as Dillon, Wolford and the Williams Fork per unit area per year. Typically in Colorado, evaporation values are inversely related to elevation so that the evaporation at Gross should exceed that of the other reservoirs in the following table. The net evaporation at Gross should be closer to 1400 AF/year which is approaching 10% of the predicted annual shortfall of supply in 2030. Table 3 (below) illustrates the error. **Table 3. Reservoir evapotranspiration.** | Reservoir and elevation at full pool (ft asl)	Surface area full (acre)	Avg annual net evaporation from DEIS (AF)	Avg annual Net evap per surface acre (AF)	Avg annual Net evap per surface acre (inches)
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Dillon 9017	3233	5847	1.81	~22
Wolford 7489	1550	2701	1.74	~21
Will. Fork 7814	1860	3227	1.73	~21
Gross enlarged 7400	818	991	1.21	~14.5 | The error is significant in how it affects the water budget for this Project. In other words, the storage Project becomes a less attractive, less efficient use of water as the ratio of water diverted to water available for use increases. Higher than reported evaporation losses will increase this ratio. The error needs to be corrected and the Project reassessed based on new information. Section 4.1.1.1, Water Quality for Gross Reservoir, page 4-31: "This could change the overall water quality within the reservoir because stream water quality can be significantly different in dry, average, and wet years." The DEIS should show how water quality would be expected to change for each of the scenarios for either better or worse. Page 29 of 68	*diverts from 31 streams. Only 10 of the streams have bypass flow provisions. Each of the streams is fairly large, in the context of streams in the Fraser basin. The majority of diverted stream are much smaller. None of the sites are located immediately below diversions, where the effects of diversion are most pronounced. Further, no stream surveys compared conditions above and below diversions. Such a comparison would help to support or refute the conclusions that the project would have minimal cumulative effects.* **Response #738-88:** Additional sediment sampling and modeling sites were added immediately below diversion locations to assess stream morphology responses at these areas. Existing conditions were evaluated and documented at other diversion points to assess stream conditions. Historic aerial photographs were evaluated at diversion points to define past stream responses. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-37*** *(ID 3556)**:*** *Average vs. firm yield: While the purpose and need is defined in terms of firm yield, the rest of the document discusses change in flow and diversion in terms of average yield. The concept of firm yield is*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 4.1.1.2, page 4-35: Prioritizing and sequencing diversion from the major source rivers might help to mitigate project effects. Taking water first from less developed and impacted systems might help maintain habitats and avoid resource conflicts. The DEIS does not contain enough information to determine if this alternative was evaluated. *Page 4-35, Fraser River Stream Flow:* The rationale to combine several of the smaller tributaries to model flow is questionable. Small tributaries are underrepresented in the analysis and whether the proposed action impacts or does not impact those channels has not been demonstrated. Section 4.1.1.2, page 4-36: DW asserts that "the (bypass flow) agreements do not define set amounts for the bypass flow reductions" but the Clinton agreement only waived stipulations for 3 out of 4 streams with required bypass flows (Ranch Creek bypass flow stipulations were not waived). It appears that section 3.(e)2 of the 1970 amendatory decision is still in effect for Ranch Creek; therefore, there is a formula for reducing the bypass flow at Ranch Creek. The stated formula is "if at any time Gross reservoir storage falls below 25,000 AF, the Ranch Creek bypass flow may be reduced by 6% per each 1000 AF of storage water below 25,000 AF in Gross". According to this formula for the Ranch Creek bypass reduction, the PACSM modeling for bypass flow reductions on Ranch Creek is in error as the model assumption of <65% reservoir storage results in approximately 27,000 AF (existing size) or 74,000 AF (enlarged) stored in Gross; Ranch Creek bypass flow would not be allowed to be reduced under these circumstances. Page 4-36, 1st paragraph. Tables H-7.1 through H-7.3: Average annual Moffat Tunnel diversions would increase by 10,300 AF or 15% and 11,800 AF or 19% in average and wet years, respectively." The average value of 10,300 AF does not agree with the value shown for increased flows in South Boulder Creek [from Moffat tunnel diversions] of 10,400 AF that is found on page ES-18 of the executive summary. Section 4.1.1.2, page 4-37: Although it is counterintuitive, many west slope streams such as St. Louis Creek do not "grow" in volume in a downstream direction except for certain times of the year. For example, following runoff in the irrigation season, downstream diversions and use result in decreased downstream discharges in St. Louis Creek, further magnifying reductions in flow in these downstream areas, rather than diluting them as suggested in the text. Starting on page 4-37, the text becomes extremely difficult to read as it includes information that should be represented in tabular format. In the aquatic resources section, creeks were broken up separately. Consider this same format for Fraser River tributary discussions. The results of an increase in water diversions from the Gumlick Tunnel to the Vasquez Tunnel and how that might affect Vasquez Creek should be addressed in the document. As described previously in these comments, Vasquez Creek below the tunnel (without accounting for Vasquez Tunnel imported flows) is eroding large piles of material left by DW from the boring of the tunnel in the 1960's. This large spoils pile sits immediately adjacent to the creek, and the creek has begun to erode that material, which is subsequently ending up in the creek. DW, according to their permit, should have removed these spoils after tunnel construction. Page 30 of 68	*probably not widely understood by the audience reviewing the EIS, and a discussion of the firm yield versus average yield would be helpful.* **Response #738-37:** An explanation of firm yield versus average yield was included in FEIS Section 1.4.2. Changes in flow and diversions are discussed in terms of averages not average yield. The average monthly change in flow at a given location is the average of all values for that month for the 45-year study period from 1947 through 1991. Dry and wet year monthly averages are defined as the average of the five wettest and five driest years in the study period. ***Comment #738-38*** *(ID 3557)**:*** *Recreation The Moffat Collection System Corps DEIS does not reference the Gross Reservoir Hydroelectric Project EA dated 2000. This document analyzed affects on Recreation and Visual Resources for the relicensing project at that time. The Moffat Collection System DEIS does not specify recreation/visual resource actions as the 2000 EA did, nor does it adequately analyze affects to the extent necessary to properly comment.* **Response #738-38:** The Gross Reservoir Hydroelectric Project Environmental Assessment (2000) is referenced in the DEIS. Impacts to recreation and visual resources at Gross Reservoir were fully considered in DEIS Sections 4.13 and 4.15, respectively. ***Comment #738-69*** *(ID 3550)**:*** *Wildlife / Weeds Outdated references: The DEIS sections reviewed appear to be outdated – for example, references to Colorado Division of Wildlife (CDOW) databases and verbal communication are dated 2005; references to Colorado Natural Heritage Program data are from 2005; and the USFWS Species List in Appendix G is from 2005. CDOW and*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Below is a brief discussion of DW's stipulations associated with their operation and construction of Vasquez Tunnel. DW has not adhered to these stipulations under current operations; any increases in water diversions from the Gumlick Tunnel to the Vasquez Tunnel raises additional concerns regarding the proposed Project. Stipulations included by the FWS in the federal right of way for the Vasquez Tunnel include the following (from Bureau Sport Fisheries and Wildlife Memo dated November 21, 1969): a. Control the releases of water into Vasquez Tunnel to avoid unreasonable or unnecessary erosion of the natural channel of Vasquez Creek below the tunnel outlet b. Protect the stream channel and stream banks through such measures as are necessary and approved by the USFS to avoid unreasonable or unnecessary damage from the increased flow of water incident to diversion of water through the tunnel Other stipulations included in DW's right of way regarding Vasquez Tunnel: a. To abide by the follow provisions as to material excavated from the tunnel: 1. All encroachment on streams will be avoided, and no waste materials will be deposited in, or be permitted to obstruct natural stream channels 2. The surface of the spoil bank shall be graded off to an even grade and where practicable, top soil placed on top, and seeded to grass or planted to other vegetation b. To abide by the following provisions as to areas on which the ground cover is destroyed in the course of construction: 1. To install suitable devices and drainage structures sufficient in number to prevent the accumulation of excessive heads of water and the erosion of the land surface 2. Top soil shall be stripped from the permitted area and be deposited in storage piles apart from other excavated material. After the desired amount of material has been removed and the excavation trimmed and smoothed, the stored topsoil shall be evenly spread over subsoil exposed, and shall be seeded to grass or planted with other suitable vegetation. There are also stipulations from the Bureau of Land Management as part of their right-of-way that include weed control on Federal Lands. Spoil piles that were not reseeded or re-vegetated after the boring of Vasquez Tunnel have infestations of oxeye daisy that need to be addressed. *Page 4-37, Fraser River Stream Flow, paragraph 4:* There is no mention how flows will be changed along Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek. Any flow changes need to be quantified. Section 4.1.1.2, page 4-39: See 2010 CDPHE 303(d) list for possible correction to statement that no sections of the Fraser are listed. *Page 4-40, Fraser River Stream Flow, paragraph 2:* Refer to comments made on Section 3.1.6 of the DEIS. Page 31 of 68	*CNHP data were updated in 2009; and the USFWS list was most recently updated in May 2009. Most of this information is available on the internet. CNHP data does not currently include any data for Proposed, Threatened, Endangered, Forest Service Sensitive, or rare/local concern plants on the Forest since 2000, including new or revised element occurrences for plants, so is nine years out of date. There are hundreds of plant records not posted to the CNHP database. The Forest Service is currently entering these data into a new release of the USFS NRIS TESP database, and once this is finished the data will be migrated all at once to the CNHP database. In the meantime, the ARP Forest botanist can provide data specific to this project.* **Response #738-69:** The DEIS was prepared prior to the 2009 updates. Current references and data have been incorporated in FEIS Sections 3.7 and 3.9. The Corps conducted surveys for special status plant populations at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.10.1 and 5.10.1, and are described in more detail in the Special Status Species Technical Report in Appendix G. The Corps contacted the USFS requesting data that is not currently available through the Colorado Natural Heritage Program (CNHP). To date, the Corps has not yet received this data and therefore it is not included in the FEIS. ***Comment #738-86*** *(ID 3551)**:*** *Special Status Plants: Based on the best available data, in conflict with Forest Service policy, this project is likely to adversely affect population viability*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 4.1.1.2, page 4-53: Show how the completion of the Fraser River sediment pond would improve channel conditions and partially mitigate effects from the Moffat firming Project. Given that there is an "orders of magnitude" more capacity than sediment supply, Explain how traction sand is even an issue. The document should discuss the current status of the pond project and the road blocks to completion. The DEIS should disclose the other partners (besides CDOT) that have worked on this pond project. *Page 4-53, 2nd and 3rd paragraph.*. "These results indicate that the system is sediment-limited and the morphology of the channel is not expected to be impacted by flow reductions." On-the-ground experience indicates that this stream reach is not sediment limited. The substrate is heavily infilled with sand. The source of this sand is likely traction sand from Highway 40. This sand is evident in many locations along the Fraser River, and is particularly evident directly below DW's Fraser diversion. "Model results suggest that this localized deposition is likely to continue at times of lower flow and the material should be remobilized during higher flow events." The persistence of this sand infill would indicate that sediment transport capacity is not "orders of magnitude" greater than sediment supply, or is not effective in transporting the sand. We were unable to find particle size distribution for this site if in the voluminous appendix material. Section 4.1.1.2, page 4-62: Show how DW's water diverted from the Upper Williams Fork is used strictly as drinking water. Once combined with native Vasquez Creek flows, South Boulder Creek water. Unless it can be proven, this statement should be stricken from the EIS. *Page 4-62, Evaluation of Williams Fork River Water Quality:* "Table 4.1-12, one parameter, dissolved oxygen, does not meet stream standards downstream of the confluence of the aforementioned four tributaries. The reason for depressed dissolved oxygen is unknown." Show whether this could be attributed to existing streamflow reductions, and resulting higher temperatures. *Page 4-96, South Boulder Creek Stream Morphology and Sedimentation, 1st and 2nd paragraph:* "…capacity is orders of magnitude greater than supply." "It is possible that the increase in transport capacity could lead to localized bed and bank erosion." "…the Proposed Action is expected to have only negligible impacts on channel morphology…" There needs to be more explanation to support the conclusion that there would be "negligible impacts" to South Boulder Creek. If capacity is orders of magnitude greater than supply, why would you not expect the stream to be seeking sediment, and why would you expect only localized bed and bank erosion. There are numerous examples of augmented stream channels in Colorado, including South Boulder Creek, where the impacts have not been negligible and localized, but rather significant and extensive. Section 4.2, page 4-202: The description of "diversions of water from the west slope" is not clear. The document states flow does not return to all tributaries diverted. Please explain the statement "there were minimum bypass flows at 11 of the 29 diversions structures in July 2006". Verify if these are administratively required minimum bypass flows or "spilling". This statement Page 32 of 68	*on the Planning Unit (ARP) for one FS Sensitive species and two rare/local concern species. The project may also affect viability on the ARP for two additional rare/local concern plant species. All five species were found in the vicinity of Gross Reservoir during surveys for the 2001 Denver Water FERC licensing. Of the five, only the FS Sensitive species is mentioned in the DEIS and that is only mentioned in a species list table. It is not mentioned in the body of the DEIS as occurring in the area, and effects are not analyzed. The remaining four species are not mentioned in the DEIS or appendices. Mitigations and salvage efforts are recommended under Sections 4.6.7.1 and 4.8.7; however it must be recognized that even with mitigation measures, values and species may not be comparable. Some rare plants that would be inundated probably cannot be found elsewhere and purchased or protected.* **Response #738-86:** The Corps conducted surveys for special status plant populations at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in the Special Status Species Technical Report in Appendix G. While several rare plants species would be affected by inundation under all alternatives, new occurrences of all species were also documented outside of the impact area. The impacts by alternative are presented in FEIS Section 5.10, including an assessment of population viability in the Arapahoe National Forest adjacent to Gross Reservoir. ***Comment #738-87*** *(ID 3552)**:*** *Fens: There is no discussion of surveys done to determine presence or absence of fens, or*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project implies that the remaining 18 diversions removed all the water, rather than "nearly all the streamflow" that is stated in the DEIS. Please verify. There are no data to show that seepage occurs from diversions structures "at all times when there is water in those structures". It could be possible that the stream is gaining at the diversion point. In fact, in the absence of surface water inputs from tributaries, flow recovery below the diversion would indicate that the reach was gaining and not losing water to seepage. Later, the DEIS states there is flow recovery downstream of diversions, and that diversion impoundment seepage provides for the recovery flows. If the impoundments are seeping and contribute to flow recovery, explain why nine streams are showing completely dry beds below diversions for the remainder of their channel length. Section 4.2, page 4-203: DW's diversions cause **all** (rather than **some** as stated in the DEIS) diverted streams to have decreased flow, except for two streams that are augmented by diverting other streams. Some of the diverted streams do not go dry at "locations", rather they are dry for their entire length (entire reaches, not points) below the diversion until reaching a confluence. The document should display the current condition of the streams. Please define the term "small declines" in stream levels. Display the stage decline as a percentage relative to bankfull discharge. Most of these diverted streams are only several feet deep at bankfull. Show the effects of diversion of water on river stage under the existing condition (up to 65% native streamflow) and for the Project, with comparisons to native flows. Display the diversions by times of the year, as opposed to percentage of mean annual flow to show true effects at any point in time. The conclusion that there is no effect on groundwater levels outside of the limits of the diverted streams is not supported by any data. In fact, changing the hydraulic gradient (steepening it towards the diverted streams) could very easily depress the water table elevation in adjacent uplands. Using a budget approach, it is easy to see that if inputs are static or reduced, and outputs increase, the change in storage is negative. Because DW's diversion system rings the upper Fraser valley, the effects to groundwater are widespread rather than localized as suggested in the DEIS. Alternately, Darcy's Law for groundwater discharge shows that discharge increases as slope increases. Section 4.2, page 4-204: 1st sentence under Moffat Project Effects: the timing of additional diversions actually maximizes, rather than minimizes the effects to groundwater recharge. In dry years, there is little groundwater recharge because a higher proportion of the available water is used by evapotranspiration relative to wet years. There is less streamflow and overbank flooding, reducing floodplain groundwater recharge. It is in the wet years where substantial diversions are proposed, that most of the groundwater recharge occurs. Therefore, the timing of proposed diversions actually would significantly reduce groundwater recharge. The DEIS describes groundwater recharge and discharge as "relatively minor components of the (hydrologic) systems" but the hydrologic budget for the Fraser basin shows otherwise. For example, the DEIS Fraser basin water budget claims that groundwater discharge amounts to approx 42,000 AF per year compared to 64,500 AF of surface flow out of the watershed annually. Thus, groundwater discharge is greater than 10% of the total water budget and about Page 33 of 68	*communication with any experts who might provide further information about known or likely fen occurrences in the project area. Furthermore, there is no analysis of impacts to fens, which are a conservation priority for the USFS and for the USFWS Mountain-Prairie Region, and are considered a Category 1 wetland by the USFWS. This is particularly important in the Williams Fork area, where fens are present (documented in the DEIS Chapter 3) at both river segment sample sites selected by the CORPS to represent effects to other project river segments. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology such as those proposed with this project.* **Response #738-87:** Please see the response to Comment ID 3605. ***Comment #738-70*** *(ID 3553)**:*** *Species lists: All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes Forest Service Sensitive species, Management Indicator species, and rare/local concern plants.* **Response #738-70:** FEIS Sections 3.10, 5.10, and Appendix G were updated to include current lists of USFS Sensitive Species, MIS, and rare/local concern plants. ***Comment #738-68*** *(ID 3549)**:*** *Special Status Species analysis: The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects to special status species other than three federally and/or state-listed animal species that are discussed*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project two-thirds of the total surface flow out of the basin. Groundwater discharge alone is more than double the amount of water DW hopes to firm up thru this Project. It is mentioned that the amount of groundwater recharge through streambeds is controlled by the infiltration properties of the streambed. Regardless of the permeability rate of mineral soils, water must be present in the channel for groundwater recharge to occur. DW proposes to increase the diversion duration, thereby extending both the length of time streambeds are completely dry as well as the physical length. The physical characteristics and therefore the amount of groundwater recharge contributed by streambed percolation would change because reduced high flows will allow vegetation encroachment on the channel bed. The analysis needs to provide data that support the statement that direct groundwater impacts would only occur in local areas around the existing diversions that take up to 85% of the native flow for most of the affected stream miles in the basin. Impacts to groundwater may occur anywhere streamflows are reduced at any time, all the way down to the Colorado River. Recharge of groundwater from unlined portions of the canals will only occur as long as the conveyance system is not encapsulated in pipes. Share what plans DW may have to convert the existing open canals to enclosed pipeline, resulting in elimination of seepage and groundwater recharge. Increasing the collection system efficiency could result in both beneficial effects, by reducing diversion of west-slope surface flows, and adverse effects, by reducing groundwater recharge. The analysis needs to depict these effects clearly. Page 4-205, conclusion on groundwater effects: This conclusion is incorrect; although the Project may not be affecting upland recharge rates, the Project does accelerate groundwater discharge to gaining streams by increasing the hydraulic gradient from uplands to the riparian by lowering stream stages. Section 4.2.7, page 4-213 and 214: If DW can mitigate west-slope groundwater impacts by "effectively evaluating the system components", we encourage them to do so then present the results in the FEIS. The impacts to groundwater are long-term permanent, rather than short-term because water is diverted completely out of the basin. The actual groundwater impacts amount to an irretrievable loss of groundwater recharge that ecosystems, and publics rely on. Show what mitigation would be considered for the west-slope water and sanitation departments reliant on groundwater that will experience future supply shortages and impacts to effluent discharge permits (disclosed in this DEIS). Groundwater is not understood as well as surface water; monitoring is needed in subsequent analysis as data presented in the DEIS are inadequate to characterize existing conditions or support the conclusions. Section 4.5, Vegetation: The third issue bullet lists "Impact of reservoir inundation on rare plants or communities." This section discusses plant communities, but, as mentioned above, there is no discussion of effects to individual plant species in this section or in Section 4.8: Special Status Species and no reference to such an analysis. It appears that no analysis of effects for any individual plant species was done in this section. There are no additional available reports that might contain analysis for USFS Sensitive or rare/local concern plant species. See also General Comment at beginning of Chapter 4 comments, and Section 3.8.1.1 Gross Reservoir: Special Status Species above. Page 34 of 68	*individually.* **Response #738-68:** Additional information has been added to the FEIS for other special status species (FEIS Sections 3.10 and 5.10). In addition, a Special Status Species Technical Report (Appendix G) has been developed that includes the results of 2010 botanical and wildlife surveys conducted by the Corps at Gross Reservoir and consideration of all USFS sensitive species. ***Comment #738-67*** *(ID 3548)**:*** *Plant species analysis: There is no environmental baseline or analysis for any plant species except those federally listed plants potentially affected by water depletions,. The sections on vegetation discuss rare plant communities, but do not mention any individual plant species, even though "Impact of reservoir inundation on rare plants or communities" is listed as a primary issue under the vegetation section in Chapter 4.* **Response #738-67:** Per consultation with the USFS, information regarding USFS Sensitive and rare/local concern plant species has been added to FEIS Sections 3.7.1 and 5.7.1 based on surveys conducted by the Corps at Gross Reservoir in summer 2010. A Biological Technical Report has also been prepared that describes the results of surveys for these species and is included in Appendix G in the FEIS. ***Comment #738-93*** *(ID 3569)**:*** *Wildlife habitats and ARP Forest Plan: There is no discussion of important wildlife habitats relevant to the ARP Forest Plan, including old growth, effective habitat, interior forests, and corridors. There is no discussion about consistency with the Forest Plan regarding these habitats or other Forest Plan goals,*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 4.5: *Plant species analysis:* Except for federally listed plants potentially affected by water depletions, there is no environmental baseline or analysis for any plant species. The sections on vegetation discuss rare plant communities, but do not mention any individual plant species, although "Impact of reservoir inundation on rare plants or communities" is listed as a primary issue under the vegetation section in Chapter 4. Section 4.5.1.1, pages 4-230 to 4-232, Gross Reservoir: *Third paragraph on page 4-231:* The following statement is made: "The quarry site would not be revegetated because of exposed rock and lack of suitable soil for restoration efforts." The analysis needs to provide further discussion regarding whether this statement is intended to apply to alternative quarry sites that may be considered during the design phase (see Section 2.3.2.1 Gross Reservoir: Borrow/Embankment Materials p. 2-32). The analysis needs to disclose the information considered in arriving at this conclusion, and whether all available options for site rehabilitation were considered before dismissing revegetation. Measures to consider include: saving and storing topsoil and/or vegetation removed from the quarry or other affected areas; importing materials to use for site rehabilitation, with provisions for noxious weed prevention; or using a smaller portion of the proposed quarry area combined with alternative sites, perhaps changing the site rehabilitation potential. *Fourth paragraph on page 4-231:* Water is a known dispersal mechanism for weed seeds. Discussion of noxious weed impacts needs to include increased potential for introduction and spread of weed species into newly disturbed areas around Gross Reservoir from DW's Moffat Collection system, including spread from known weed infestations in Grand County associated with the system. See also comments under Section 3.5.0. *Last paragraph on page 4-231:* This paragraph discusses impacts on two PCA's; see note above under Section 3.7.1.1; these is now one PCA. Section 4.5.2.1, Gross Reservoir: Additional analysis is needed for plant communities potentially affected by project activities. Refer to Table 5: Plant Communities of Local Concern for the ARP in Appendix G comments for additional plant communities that need surveys and analysis. Section 4.5.7, page 4-240 and 4-241, Mitigation and Monitoring: *First bullet re: revegetation plan* – A USFS botanist should be consulted to recommend and/or review seed mixes to be used on National Forest lands. Revegetation shall be in compliance with the Arapaho-Roosevelt National Forests revegetation policy for lands administered by the USFS. *Second bullet re: temporary impact areas* – Erosion matting, straw, soil amendment, or other measures may be needed to maximize revegetation success, especially in highly disturbed sites exposed to wind. If matting is used, use a product made of biodegradable material – not plastic - and a single layer, to avoid entrapping wildlife – such as coconut-straw erosion blankets described in Section 4.8.7 under Common Garter Snake on p. 4-305. Consult with a USFS botanist prior to using any soil amendments such as fertilizer, which can be favorable to noxious weeds. Also consult with a hydrologist and/or fish biologist if fertilizer use is considered, to Page 35 of 68	*objectives, standards, and guidelines that apply to wildlife, botany, and noxious weeds.* **Response #738-93:** Please see the response to Comment ID 3821. ***Comment #738-75*** *(ID 3566)**:*** *Enclosed are the specific comments of the US Forest Service (USFS) for the proposed Moffat Collection System Project (Project). The US Army Corps of Engineers (ACOE), on behalf of Denver Water (DW), presented their analysis in a Draft Environmental Impact Statement (DEIS), published in October 2009. These comments are presented with citations to specific pages and sections of the DEIS.* **Response #738-75:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #738-76*** *(ID 3567)**:*** *First paragraph, first sentence: "Two federally listed species, bald eagle and slender moonwort, have the potential to occur at Gross Reservoir but would not be impacted under any of the action alternatives." This statement is incorrect because the bald eagle was delisted in 2007, as acknowledged on p. 4-291 of the DEIS, and the slender moonwort has never been federally listed, although it was formerly a candidate for listing. In addition, slender moonwort is not mentioned in Chapter 3 or Chapter 4 of the DEIS; i.e., no baseline information is given and no effects analysis is presented. The Executive Summary should reflect the most recent information based on the biological opinion and be consistent with the DEIS.*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project ensure that any concerns regarding runoff of fertilizer into riparian areas or water bodies would be addressed. *Fifth bullet re: weed management plan* – coordination should include the USFS. *Sixth bullet re: weed-free equipment* – add that all forage products used on National Forest lands will comply with USFS Rocky Mountain Region Order No. 02-2005-01 requiring use of certified weed-free hay, straw, or mulch in all activities on National Forest lands." *Add the following as mitigation:* Consult with a USFS botanist regarding seed testing if revegetation will occur. Any seed used on NFS land on the project will be required to be tested for smooth brome, and "all states noxious weed seed exam" according to Association of Official Seed Analysts standards and will be certified by a Registered Seed Technologist or Seed Analyst as meeting the requirements of the Federal Seed Act (7 U.S.C. Chapter 37: Sections 1551-1611) and the Rules and Regulations of the Colorado Seed Act pursuant to 35-27-101 through 125, C.R.S. (1993 Supp. as amended by Senate Bill 93-17). Seed used shall be noxious weed seed free. *Add the following as mitigation:* Include the following, or equivalent language as agreed to by the USFS, in contract specifications for revegetation: Seed mixes will be approved by FERC and USFS. If a species in the seed mix is not available, the Contractor shall provide written evidence from three seed vendors that the species is not available. With written approval, the mix by be adjusted and a new species may be substituted after consultation with FERC and the USFS. Seed lot tags and seed shall be available to FERC and USFS at least one month prior to seeding, for testing that may be performed by USFS. If noxious weed seeds or smooth brome seeds are found, seed may be rejected and the Contractor shall be responsible for replacement cost of seed. *Add a mitigation to address transport of weeds from DW's collection system components in Grand County to Gross Reservoir.* Treatment of weeds should be included with other measures as appropriate. Section 4.6, Riparian and Wetland Areas: *Fens:* There is neither discussion of surveys to determine presence or absence of fens, nor evidence of communication with any experts who might provide further information on fens in the Project area. Furthermore, there is no analysis of impacts to fens, which are a conservation priority for the USFS and for the FWS Mountain-Prairie Region, and are considered a Category 1 wetland by the FWS. This is particularly important in the Williams Fork area, where fens are present (documented in the DEIS Chapter 3) at both river segment sample sites selected by the ACOE to represent effects to other project river segments. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology. *Page 4-245, Stream Flow Changes, 2nd and 3rd para.:* "Although major impacts to riparian systems in the West have been documented as a result of stream flow modifications (Stine et al. 1983), these are usually in situations where diversions resulted in complete dewatering of the Page 36 of 68	**Response #738-76:** FEIS Sections 3.10 and 5.10 were updated to address currently listed, proposed and candidate species. ***Comment #738-92*** *(ID 3568)**:*** *Page ES-17 and 18, Stream Flows: Item number 3 indicates that the average annual flows in the Colorado downstream from the Blue River would be reduced by 2300 acre-feet (AF) when comparing the proposed action to the no action alternative. It is not apparent how a total average annual increase in diversion of 2300 AF would meet the purpose and need of providing Denver with an additional 18,000 AF of firm yield. Even if the Blue River contributions to DW's south system are not accounted for, the sum of the differences in flow reductions between the proposed action and no action alternative for the Fraser and Williams Fork is 8000 AF, which still appears to be far less than the stated need for 18,000 AF of firm yield. It would appear that the sum of the differences in flow between the proposed action and no action alternative for the Fraser, Williams Fork and Blue River (the diverted basins) should be equal to the total differences in flow between the proposed action and no action alternative for the Colorado downstream of the Blue, but this is not the case. The first amount is 2600 AF while the second amount is 2300 AF. Further, it would appear that the sum of the differences between the proposed action and no action alternative for the Fraser and Williams Fork (flows diverted to the Moffat tunnel) should be equal to the differences for South Boulder Creek (the augmented stream), but they are not (8000 AF vs. 8100 AF). Item 1 indicates that for the proposed action, flows in the Williams Fork below Steelman Creek would decrease by 1910 AF, but that flows downstream in the Williams Fork below Williams Fork Reservoir would decrease by only 1700 AF. How can the*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project stream, profound changes in flows, or major modifications to stream hydrology resulting from gravel mining or other types of disturbance. This level of flow change or modifications to stream channels is not predicted to result from the Moffat Project. This conclusion is further supported by the fact that the Project would have little or no impact on low flows, which are typically important for maintaining the relatively high water availability on which riparian plants depend for growth and survival (Shafroth and Beauchamp 2006)." Although the proposed project may not result in complete dewatering of stream channels, it is only because the existing diversion system already completely dewaters, for extensive periods, those streams (all but 10) that are not protected with bypass flow agreements. *First sentence under Table 4.6-3, page 4-251:* "Given the conclusion that the Project would have little or no impact on groundwater levels, it can also be concluded that the Project would have little or no impact on riparian vegetation dependent upon groundwater." This conclusion does not appear to be supported by the analysis provided. Refer to comments under Section 4.2 p. 4-203 through 4-205 for further details. Section 4.6.1.2, River Segments: *Lower Fraser River, pages 4-256 and 4-257:* Refer to comment under Section 3.6.5.1: Upper Fraser River: Fraser Canyon Reach: FR2 – Fraser River Below Tabernash regarding habitat actually occupied by the shrubby cinquefoil/tufted hairgrass plant association, and whether a fen is present at sample site FR2. The first paragraph on p. 4-257 mentions the shrubby cinquefoil and that it may expand into sites previously occupied by Geyer's willow, but does not discuss impacts to the shrubby cinquefoil as it currently occurs. Subsequent analysis needs to discuss this impact. In addition, this section should discuss impacts to a fen at sample site FR2 if one is present. Further, as stated previously, Chapter 3 Section 3.0: Focus River Segments on p. 3-5 states: "Data for the focus reaches were evaluated and extrapolated to the overall study area." It does not appear that this was done relative to fens. *Williams Fork River, page 4-257:* As noted above, Chapter 3 Section 3.0: Focus River Segments states "Data for the focus reaches were evaluated and extrapolated to the overall study area." It does not appear that this was done for environmental effects to fens in Chapter 4, as the word "fen" does not occur in the chapter. USFS Wildlife Biologists believe fens may occur in many locations along the Williams Fork, based on field experience. The USFS is not aware of any formal fen surveys in the Williams Fork area. There is no mention in the DEIS of consultation with experts in fens who may be able to provide information regarding existing fens and/or the likelihood of additional fens occurring in the Project Area, particularly in the Williams Fork where fens occur at both sample sites. One such expert is Dr. David Cooper, a wetlands researcher from Colorado State University who has published scientific papers on fens, including research in Rocky Mountain National Park (Cooper et al. 1998). Cooper and others concluded; "Fens in this region do not appear to be sustainable under the drought conditions produced by ditches, water diversions, or ground-water pumping, all of which would lower water tables." Page 37 of 68	*decreases in flow downstream be less than the decreases in flow upstream on the same river? These are only a few examples of inconsistencies in the analysis that should be explained in a supplemental or final DEIS.* **Response #738-92:** The 18,000/yr of new firm yield under the Proposed Action comes from increased diversions through the Gumlick Tunnel, Moffat Tunnel, and Roberts Tunnel, as well as additional South Boulder Creek and South Platte River diversions. Under the No Action Alternative it is not possible to meet an additional 18,000 AF/yr of demand. Under the No Action Alternative, Denver Water must deplete the Strategic Water Reserve and shortages would be incurred in meeting both treated and raw water customer demands in dry years. The No Action Alternative depletes Denver Water's storage by approximately 57,000 AF more than the Proposed Action during the critical period. Because the additional 18,000 AF/yr of demand cannot be fully met throughout the study period under the No Action alternative, the sum of the differences in flows between the No Action Alternative and Full Use of the Existing System are less than 18,000 AF/yr. Average annual additional diversions from each basin under the Proposed Action compared to Full Use of the Existing System would be as follows: • Williams Fork River: 1,900 AF/yr (Gumlick Tunnel) • Fraser River Basin: 8,400 AF/yr (Fraser River Diversion through Moffat Tunnel) • Blue River Basin: 4,800 AF/yr (Roberts Tunnel) • South Platte River Basin: 2,400 AF/yr (direct diversions and exchanges to Conduit 20)

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project In addition to fens being a high priority for protection for the USFS, the FWS Mountain-Prairie Region has made conservation and protection of fens one of their wetland priorities. Furthermore, the FWS Mountain-Prairie Region has determined that all functioning fens fall within their Resource Category 1, with a goal of no loss of existing habitat value and that every reasonable effort should be made to avoid impacting these habitats. *First Paragraph:* Impacts to the fen at sample site WF2, described in the second paragraph on p. 3-152, are not mentioned here and should be analyzed in detail. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology. *Second Paragraph:* The discussion of sample site WF1 does not address potential impacts to the large fen wetland described at the site on p. 3-150 in the partial paragraph above Table 3.6-10, which describes a fen at the site and states that fens are classified by the USFS as resources deserving special protection. Impacts to the fen at sample site WF1 should be analyzed in detail. Section 4.6.7.1, page 4-269, Compensatory Mitigation: Reference is made to Appendix M for riparian mitigation measures. Mitigation proposed in Appendix M for Riparian Vegetation consists of establishing riparian vegetation around the shoreline of an expanded Gross Reservoir. Although this may compensate for some riparian areas proposed for inundation, it will not compensate for all of the riparian areas or rare plants and plant communities that will be inundated and permanently lost. Shoreline vegetation will establish on its own; however, planting appropriate species may help it establish sooner. *An additional mitigation is recommended for Riparian Vegetation* to provide for protection of riparian areas with comparable ecological values to those being destroyed, by means such as purchase and donation to the USFS or funding restoration of comparable areas that have been degraded. Section 4.6.7.2, pages 4-269 and 4-270, Mitigation During Construction: This section should include mention of, or reference to, limiting vehicle operation to designated construction areas as stated in the first bullet under Section 4.7.7 Mitigation and Monitoring: Wildlife Habitat on p. 4-386 Section 4.7, Wildlife habitats and ARP Forest Plan: There is no discussion of important wildlife habitats relevant to the ARP Forest Plan, including old growth, effective habitat, interior forests, and corridors. There is no discussion about consistency with the Forest Plan regarding these habitats or other Forest Plan goals, objectives, standards, and guidelines that apply to wildlife, botany, and noxious weeds. Section 4.7.1.1, pages 4-272 to 4-275, Gross Reservoir: There is no discussion of effects to USFS Managed Areas and State Wildlife Areas, although the affected environment for these areas was described in Chapter 3. Discussion of environmental effects to USFS Managed Areas should include important wildlife habitats included in the ARP Forest Plan: existing old growth, old growth development areas, old growth retention, effective habitat, interior forest, and forested and open corridors. These discussions should include quantification of amounts of these habitats expected to be impacted by the project. Discussions should also include an analysis of consistency with the ARP Forest Plan and detailed discussion of inconsistencies, including Page 38 of 68	• South Boulder Creek: 1,200 AF/yr **Total: 18,700 AF/yr** Total additional diversions under the Proposed Action exceed 18,000 AF/yr due to miscellaneous losses in Denver Water's system including conveyance and evaporation. The sum of the differences in flows between the Proposed Action and No Action scenarios for the Fraser, Williams Fork, and Blue river basins (2,600 AF) does not equal the total difference in flow between the Proposed Action and No Action scenarios for the Colorado River downstream of the confluence with the Blue River (2,300 AF), because of differences in flow caused by Windy Gap Project diversions from the Colorado River. As described in DEIS Section 4.1.1.2 under the subheading Colorado River, the reduction in flow at the mouth of the Fraser River may be reduced below the Windy Gap Diversion if the Windy Gap Project is operating below its full capacity under the Full Use of the Existing System scenario, or if it is at capacity and bypassing a smaller amount than the reduction in inflow from the Fraser River Basin. Because Denver Water's Moffat Collection System water rights are senior to Windy Gap water rights, Denver Water's diversions under the Proposed Action could reduce the amount of water available for diversion at Windy Gap. In these situations, Denver Water's additional diversions would result in a reduction in Windy Gap diversions. There is a 300 AF annual reduction in Windy Gap diversions between the Proposed Action and the No Action Alternative. As shown in Table H-7.1 the sum of the difference between the Proposed Action and No Action Alternative for the Moffat Tunnel is 7,980 AF which does equal the difference for South Boulder Creek at

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Forestwide Goals and Objectives; Operational Goals, Standards and Guidelines; and applicable Standards and Guidelines based on Management Area Direction and Geographic Area Direction. *Raptors, page 4-274:* This section contains broad statements about raptors and does not acknowledge the many differences in biology and therefore effects. Differences in biology among raptor species include: different habitats used for nesting and foraging; different nest types and locations, such as cavity nests, stick nests in trees, stick nests on cliffs, and use of cliff ledges with no nest structure; use of alternate nest structures, or not; different prey species; use of the project area during different seasons; and differences in migratory habits. Differences among species, and therefore potential effects, are not acknowledged or analyzed. It is not clear whether the effects discussed in this section are being applied to owls, which are not specifically mentioned, although owls are mentioned in the corresponding section in Chapter 3. Discussion should be included about whether reservoir expansion will inundate osprey platforms installed by the USFS. *First paragraph:* The fifth sentence states that impacts *can* be avoided. Please state if they will be. Reference should be made to the mitigations in Section 4.7.7 on p. 4-286 regarding nest surveys, and how implementation of these would affect impacts to nesting raptors. Impacts may not be completely avoided, because surveys do not detect 100% of nesting birds, particularly small songbirds. A more accurate statement would be that "Impacts *would* be avoided *or minimized* by use of pre-construction surveys…." *Second paragraph*: The first sentence describes disturbance around an active raptor nest as an indirect impact – this would be considered a direct impact because it occurs at the same time and place as project activities. The last sentence cites CDOW recommendations for buffer zones for red-tailed hawk and golden eagle nests, but does not mention buffer zones for other raptors that may occur in the area. Referring to the CDOW document, "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors," revised 2/2008, may be a more efficient way of covering buffer zones here. *Third paragraph*: The last sentence in this paragraph singles out northern goshawk regarding long-term loss of habitat for forest birds. Clarification that this means accipiters, if it does, would be helpful. This sentence jumps to the conclusion that reduction of nesting and foraging habitat would likely result in long-term population reduction. No information is provided to support this conclusion, such as quantity and quality of nesting and foraging habitat in the area compared to anticipated loss of habitat, likelihood of occurrence during various seasons, size of home range relative to habitat loss, or whether any occurrences have been documented. In addition, it is not clear whether this statement is intended to apply to any other "forest bird" species such as sharp-shinned hawks or Cooper's hawks. *Other Birds, page 4-275: Second paragraph:* The second sentence states the nesting season of migratory birds and waterfowl as generally May through July. This is inconsistent with the first Mitigation and Monitoring bullet under Raptors on p. 4-286 which uses more appropriate nesting season dates of March 1 through July 31. Page 39 of 68	the Pinecliffe gage, (the augmented stream). The text in the Executive Summary was corrected as follows: Average annual flows in South Boulder Creek at the Pinecliffe gage (above Gross Reservoir) would increase by about 2,300 AF (2%) under the No Action Alternative, 10,300 AF (9%) under the Proposed Action, and between 9,200 AF and 10,100 AF (8 to 9%) for the other action alternatives. Flows in the Williams Fork below Steelman Creek would decrease by 1,910 AF/yr under the Proposed Action compared to Full Use of the Existing System, but flows downstream of Williams Fork Reservoir would decrease by only 1,700 AF/yr due to differences in evaporative losses and differences in contents in Williams Fork Reservoir at the end of the study period. ***Comment #738-59*** *(ID 3562)**:*** *Page ES-19, table: It would assist readers if the names and descriptions of the alternatives were provided as a footnote.* **Response #738-59:** The suggested footnote was added to the table titled "Comparison of Average Annual Flows, Reservoir Outflows, and Diversions at Key Locations (AF)" in the FEIS. ***Comment #738-7*** *(ID 3563)**:*** *Page ES-22: Stream Morphology and Sedimentation The analysis should include discussion about the tributaries including how sediment is delivered from the tributaries to the main stem streams and how they are affected by larger quantities of water being diverted from the channel during peak flows. The analysis should also show how much peak discharge is reduced compared to bankfull flow conditions.*

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USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 4.7.1.2, page 4-276 Sensitive Areas: Table 4.7-3, same comment as under Section 3.7.1.1 above re: p. 3-173 – Winiger Gulch and South Boulder Creek above Gross Reservoir are a single PCA according to current CNHP data. 4.7.7, page 4-286, Wildlife Habitat: *First and second bullets* – These measures should reference Section 4.6.7.2 Mitigation during Construction pp. 4-269 and 4-270 for further details. *Third and fourth bullets* – These measures should reference Section 4.5.7 Mitigation and Monitoring for guidance and further specifics regarding revegetation and restoration. *The USFS recommends adding a mitigation providing for replacement of the winter concentration areas and severe elk winter range that will be inundated and permanently lost.* This could be accomplished by protecting lands with comparable value as elk winter range that may be vulnerable to future development, by means such as purchasing and donating land to the USFS. *Raptors, First bullet:* Second sentence - "… nest surveys would be conducted prior to construction to ensure that no active nests are present in or near the construction footprint." As discussed under Section 4.7.1.1 First Paragraph above, nesting surveys do not detect 100% of nesting birds. A variety of bird species may nest in the project area with differences in nesting seasons, nest types and locations, appropriate survey methods, and likelihood of detection during surveys. Conducting surveys will help to minimize impacts to nesting birds but is unlikely to ensure avoidance of impacts. *Second bullet:* May 1 through June 1 is not inclusive enough for the multiple raptor species that may occur in the area, including owls. Expand the survey period to include appropriate survey dates for all raptor species that may occur. Clarify that owls will be included in surveys. Clarify what is meant by "annually during an appropriate season" – does this mean annually while construction and vegetation clearing are occurring? Depending on the timing of construction and vegetation clearing, surveys may be needed prior to the nesting season that construction and vegetation clearing begin. *Third bullet:* Buffer zones should be based on CDOW Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors, revised 2/2008. *Migratory Birds*, This paragraph states that land-clearing activities would be timed to avoid the breeding season to avoid impacts to active bird nests, as described for raptors. It is not clear whether this means that surveys would be conducted for all nesting birds if land clearing occurs during nesting season. Mitigation measures for raptors and migratory birds should be consistently stated and implemented – either avoid land clearing during nesting season, or provide for nesting surveys for all birds if land clearing occurs during nesting season. As noted above, nesting surveys would not insure that no nesting birds are impacted because surveys do not detect 100% of nesting birds. Section 4.8 *Outdated references*: The DEIS appears to be outdated – for example, references to CDOW databases and verbal communication are dated 2005; references to Colorado Natural Heritage Program (CNHP) data are from 2005; and the FWS Species List in Appendix G is from 2005. CDOW and CNHP data were updated in 2009; and the FWS list was most recently Page 40 of 68	**Response #738-7:** Additional discussion of sediment has been added to FEIS Section 4.6.3. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Project alternatives. This information supplements numeric modeling that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #738-73*** *(ID 3564)**:*** *Page ES-23: Floodplains The analysis should show how the combination of reduced high flows and sediment supply will alter floodplain sediment dynamics, which in turn will influence vegetation dynamics and processes and terrestrial wildlife.* **Response #738-73:** The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project updated in May 2009. Most of this information is available on the internet. CNHP data does not currently include any data for Threatened, Endangered, USFS Sensitive, Proposed (TESP) or rare/local concern plants on the Forest since 2000, including new or revised element occurrences for plants, so is nine years out of date. There are hundreds of plant records not posted to the CNHP database. The USFS is currently entering these data into a new release of the USFS NRIS TESP database, with eventual full data migration to the CNHP database. In the meantime, the ARP Forest botanist can provide data specific to this project, on request. Section 4.8, *Special Status Plants*: Based on the best available data, in conflict with USFS policy, this project is likely to adversely affect population viability on the Planning Unit (ARP) for three plant species, one USFS Sensitive species and two rare/local concern species. The project may affect viability on the ARP for two additional rare/local concern plant species. All five species were found near Gross Reservoir during surveys for the 2001 DW FERC licensing. Of the five, only the USFS Sensitive species is mentioned in the DEIS, in a species list table. It is not mentioned in the body of the DEIS as occurring and effects are not analyzed, and the remaining four species are not mentioned in the DEIS or appendices. Mitigations and salvage efforts are recommended under Sections 4.6.7.1 and 4.8.7; however, it must be recognized that even with mitigation measures, values and species may not be comparable. Some rare plants that would be inundated probably cannot be found elsewhere and purchased or protected. Section 4.8, *Species lists:* All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes USFS Sensitive species, Management Indicator species, and rare/local concern plants. Section 4.8, *Special Status Species analysis:* The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects for SSS other than three federally and/or state-listed animal species that are discussed individually. Section 4.8.1.1, Gross Reservoir: The Federally threatened Ute ladies'-tresses orchid and Colorado butterfly plant are not analyzed in this section for Gross Reservoir, based on exclusion in Appendix G Table G-1 and in the Biological Assessment submitted by the ACOE of Engineers to the FWS. The USFS requests additional documentation regarding these two species. Refer to comments on Appendix G, Table G-1 for specifics. *Other Special Status Species, pages. 4-291 and 4-292:* This section should discuss, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), effects to all federal and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously addressed under Vegetation in Section 4.5, under Wildlife in Section 4.7, or earlier in Section 4.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species that should be considered. Discussion should include potential impacts from all aspects of the project, including vegetation removal, noise, truck traffic, blasting, road improvements and construction, recreation site relocation, etc. Page 41 of 68	Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. An analysis was performed to address the potential Project's impacts on the magnitude and frequency of lower frequency flood events. This information is provided along with a more thorough assessment of past research by others to assess Project impacts to supplement numeric modeling that has been performed. This information is provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-74*** *(ID 3565)**:*** *Page ES-23: Water Quality The analysis should show how the Project affects stream temperatures in tributaries downstream of the diversions.* **Response #738-74:** A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). ***Comment #738-6*** *(ID 3558)**:*** *Page ES-25: No Action Alternative The DEIS clearly states that the West Slope streams will be narrower and shallower during runoff months due to the withdrawal of water to meet higher demands, but neglects to clearly state that the proposed alternatives will withdraw even more water from the West Slope streams.* **Response #738-6:** The Proposed Action would cause small reductions to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. These changes were described

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project There is no discussion here of effects to any plant species including USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense, which are documented and mapped in License Article 410. Populations of several of these plant species will be inundated with reservoir expansion, and this is anticipated to compromise population viability for *Aralia nudicaulis, Cylactis (Rubus) arcticus,* and *Sanicula marilandica,* and may compromise population viability for *Carex deweyana* and *Carex sprengelii*. See discussion under Section 3.8.1.1 above regarding baseline information that should be documented and considered for these and other species. This baseline information should be used to analyze effects to local, ARP, and range-wide populations. Analysis needs to clearly and fully disclose impacts to USFS Sensitive and rare/local concern plant species and include rationale leading to conclusions regarding impacts to population viability at the local, ARP, and range-wide levels. No reference is made to any additional reports or analyses that might contain either baseline information or analysis of effects for individual plant species. Any project that adversely affecting species viability for the above-mentioned plants would be in conflict with the following USFS policy: USFS MANUAL (FSM), NATIONAL HEADQUARTERS (WO), Washington, DC FSM 1900 – planning, chapter 1920 - land management planning, Amendment No. 1900-2006-2, Effective Date January 31, 2006 1926.15 – Resource Integration Requirements When Using Planning Regulations in Effect before November 9, 2000 13. Ensure the plan provides for the kinds, amounts, and distribution of habitat needed for recovery of threatened or endangered species and needed to maintain viable, well-distributed populations of all existing native and desired nonnative species. And FSM 2600, Wildlife, Fish and Sensitive Plant Habitat Management, Amendment No. 2600-95-7, Effective Date June 23, 1995. 2670.22 - Sensitive Species. 2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on NFS land. *Second paragraph:* Noise and construction disturbance are discussed as indirect impacts. These are considered direct impacts because they occur at the same time and place as project activities. *Third paragraph:* Northern goshawk is mentioned here and also under Wildlife in Section 4.7.1.1 on p. 4-275. Effects should be analyzed in one section and referenced in additional sections as appropriate. Section 4.8.1.2, River Segments Page 42 of 68	in DEIS Section 4.1 and Appendix H. At most, the additional diversions would cause only a minor change in stream levels downstream of the diversion points. The change would only occur during the months when water levels are high. Hydraulic modeling results provided in the DEIS indicate that detailed study Site Fraser River (FR)1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other RFFAs. Additional groundwater data collected in the fall of 2010 were provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water's diversion points. The additional stream flow analyses was used with the new groundwater data to further assess the Project effects on groundwater, stream flow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8. ***Comment #738-56*** *(ID 3559)**:*** *Page ES-28: Wetlands, Waters of the U.S. and Riparian Areas Reductions in floodplain inundation flows and possibly lower near surface water tables will affect the long-term viability of woody riparian species. Thus, the assertion of minimal effect on woody riparian species is questionable.* **Response #738-56:** Both reductions in the two-year floodplain and effects on groundwater were evaluated in the DEIS 4.6.1.2. Additional information has been added to the FEIS regarding changes in inundation for return flows longer than two years (FEIS Section 5.8), and additional analysis of groundwater effects based on

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project There is no discussion in the EIS concerning the impacts to Preble's habitat on the North Fork upstream of the confluence with the South Platte. Occupied habitat has been identified in the North Fork of the South Platte and more occupied habitat is likely to be identified during subsequent surveys. The EIS includes a determination of "may affect, but unlikely to adversely affect" for Preble's (p. 4-294) on the South Platte based upon relatively small changes in flow during average and wet years. However, flow changes appear to be more substantial on the North Fork upstream of the confluence with the South Platte. Show how flow changes in the proposed action will affect the Preble's mouse habitat on the North Fork. *River Otter, page 4-295:* The following statement is presented: "Flow changes are expected to have minor or negligible impacts on riparian habitat and fish populations, and impacts to river otter would be negligible." As mentioned in our comments above on riparian and wetland areas (p. 4-251), the analysis presented does not appear to support conclusions of little or no impact to groundwater or groundwater-fed riparian vegetation. This section on river otter does not distinguish groundwater-fed vs. streamflow-dependent riparian vegetation (see also comments to Section 4.6, p. 4.245) Otters use waterways and banks in addition to riparian habitat, and this is not mentioned in the effects analysis. For example, the analysis does not consider other potential impacts including changed access to winter dens that may occur with lower water levels, such as den entrances formerly under water becoming exposed to ambient air; and changes in water depth that could influence freeze-thaw cycles and access to prey. Refer also to Section 4.8.7 comments re: adding mitigation for DW to partner with CDOW for river otter surveys. *Boreal Toad, page 4-295:* The following statement is presented: "Flow changes are expected to have minor or negligible impacts on riparian habitats and impacts to boreal toad habitat would be negligible." As mentioned in our comments above on riparian and wetland areas (p. 4-251), the analysis presented does not appear to support conclusions of little or no impacts to groundwater or groundwater-fed riparian vegetation (see also comments to Section 4.6, p. 4.245) This section on boreal toad does not distinguish groundwater-fed vs. streamflow-dependent riparian vegetation. In addition, boreal toad breeding sites occur near the main of the Williams Fork, and the analysis should consider whether flow changes could lower water tables adjacent to the Williams Fork main stem that support breeding populations of boreal toads. Refer also to Section 4.8.7 comments re: adding mitigation for DW to collaborate with CDOW for boreal toad monitoring. *Other Special Status Species, page 4-295:* This section should discuss, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), effects to all federal and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously address under Vegetation in Section 4.5, under Wildlife in Section 4.7, or earlier in Section 4.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species that should be considered. *First paragraph/sentence:* "Flow changes in other Project river segments are unlikely to affect other special status species because the flow changes would not noticeably affect habitat for aquatic or riparian species." Based on general hydrology comments and comments specific to Section 4.1, p. 4-9 and 4-245, it appears that further analysis regarding flow changes is needed in Page 43 of 68	evaluation of monitoring wells in the Fraser Valley (FEIS Section 5.4). ***Comment #738-57*** *(ID 3560)**:*** *Section 1.1, page 1-1, 1st paragraph: The DEIS states "Denver Water's collection system is composed of two major systems: the North System (also known as the Moffat Collection System) and the South System. These two raw water systems are geographically distinct and are not connected." As described in comments for "Section 1.3.1.6" the North and South collection system are interconnected by Clear Creek so that the "flexibility" argument is the Purpose and Need is moot.* **Response #738-57:** Denver Water's North and South raw water systems are not connected by Clear Creek. Denver Water does not have the ability to divert water from Clear Creek to any Denver Water facility. Denver Water can deliver water to other entities or exchange water to Denver Water facilities by releasing water from the Gumlick Tunnel to Clear Creek. However, this action does not provide new water to the North System. Water conveyed through the Gumlick Tunnel is typically delivered to the North System via the Vasquez Tunnel, which passes back through the Continental Divide to Vasquez Creek. Water in Vasquez Creek can be collected and conveyed to Gross Reservoir via the Moffat Tunnel. Alternatives 5 considered an interconnect between the South and North System from Dillon Reservoir to the Clear Creek drainage. This alternative was screened out because of the high cost of delivery to the Moffat Collection System (DEIS and FEIS Section 2.1). New firm yield must be provided to the Moffat Treatment Plant to address reliability, vulnerability,

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project order to either support this statement or include additional analysis for "other special status species" that may be impacted by flow changes. *Paragraph/Sentence under Other Special Status Species bullet, page 4-296:* This states "Reductions in bypass flows along tributaries of the Fraser River would not affect special status species, because no special status species are expected to occur in the affected stream reaches." Discussion should be included for special status plant species that occur in riparian and wetland areas and any other special status animal or plant species that may occur. This statement conflicts with brief discussions about river otter and boreal toad on the preceding page, where they are described as occurring or potentially occurring along the Fraser River, Section 4.8, Environmental Consequences for Special Status Species: The effects discussion for SSS is confusing as in two different places "other special status species" are discussed. The effects discussion for special status fish species is incomplete, and inadequate. Include discussion on Rocky Mountain Capshell snail, lake chub, mountain suckers, Colorado River cutthroat trout, and update discussion on greenback cutthroat trout with new information presented in this document. *Page 4-296* "Flow changes would have negligible or minor effects on habitat for special status aquatic species. Changes would occur downstream of Colorado River cutthroat trout occupied habitat." Show how the flow changes have minor or negligible effects. Because fish are able to move downstream and they could occupy habitat downstream of diversions (as they do in a number of tributaries). Again, it is not just changes in flow that affect SSS, the possibility of entrainment into the DW system should be discussed. "Reductions in bypass flows along tributaries of the Fraser would not affect special status species, because no special status species are expected to occur in the affected stream reaches." This statement is misleading to the reader. There is evidence, although anecdotal, indicating that mountain suckers have been found in the Fraser River. Greenback cutthroat trout and Colorado River cutthroat trout are expected to occur in affected stream reaches because they are mobile organisms and could potentially be found downstream of the diversions. In addition to USFS Sensitive and federally protected species, Forest management indicator species are also known to occur in affected stream reaches above and below the diversion points. Entrainment and stranding of fish has been observed at a number of diversion sites. This should be discussed. In addition to the reductions in flows, the mere presence of the diversion itself may affect individual fish. All of the diversions operated by DW are located in occupied habitat, and none of these diversions are screened, which is allowing entrainment of fish into the System. Special status fish could be entrained, and lost to the local population. Section 4.8.7, Mitigation and Monitoring: *The following measures are recommended for river otter and boreal toad:* DW will partner with the CDOW to support annual river otter surveys and ongoing boreal toad monitoring efforts. *The following measures or a combination of them are recommended* to mitigate, as much as possible, anticipated impacts to population viability for the following special status plant species discussed under Section 4.8.1.1 above: *Aralia nudicaulis, Cylactis (Rubus) arcticus, Sanicula* Page 44 of 68	and operational flexibility issues. The lower in the South Platte River system the interconnect is located, the more vulnerable and potentially less reliable Denver Water system is due to unplanned outages, including natural and manmade disasters. Denver Water's Collection System is vulnerable to natural and manmade disasters and system failures because approximately 90% of available reservoir storage and 80% of available water supplies rely on the unimpeded operation of Denver's South System. Loss of operation of any portion of the South System could require more water from the Moffat Collection System to meet customer's water demands. If an interconnect was located downstream of several of Denver Water's critical South System facilities, including Roberts Tunnel, Dillon Reservoir, Eleven Mile Reservoir, Cheesman Reservoir, Antero Reservoir and Strontia Springs Reservoir, Denver Water's system would remain vulnerable to unplanned outages. Loss of operation to these South Platte River facilities could affect the ability to deliver water to a downstream interconnect. The Corps believes the reliability and flexibility issues in the North System are adequately described in the DEIS. ***Comment #738-58*** *(ID 3561)**:*** *Section 1.1, page 1-1, 2nd paragraph: The statement "forest fires in DW's watersheds" implies a proprietary stake (land ownership) when in fact the majority of the watershed area is owned by the public and managed by the USFS. DW's structures are simply permitted on public lands by the managing agency. The statement should be restated such as "forest fires in publically-owned watersheds that provide the majority of DW's supply."* **Response #738-58:** The FEIS Section 1.1, 2nd paragraph has been revised to read as suggested: "Based on the IRP

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *marilandica, Carex deweyana,* and *Carex sprengelii.* The measures are listed in order of USFS priority and effectiveness, and would also apply to any additional populations of these or other special status plant species found prior to or during project implementation. 1. Avoid impacts where possible. For example, if impacts would occur from construction activities, weed treatment, recreation site location, or other project activities that could be adjusted, move or otherwise adjust project activities to avoid impacts to populations. 2. Conduct additional surveys to locate an adequate number of plants of each species that are secure/protected, to remove a viability issue. Surveys would need to include surrounding areas, primarily on the Boulder Ranger District but could include other protected lands. 3. Implement protection measures at other known sites that would help to secure viability. For populations of *Aralia nudicaulis, Cylactis (Rubus) arcticus, Sanicula marilandica, Carex deweyana,* and *Carex sprengelii* and any additional populations of these or other special status plant species found prior to or during project implementation, *the following measures are recommended as salvage efforts for populations to be permanently destroyed by inundation or other project activities where impacts are unavoidable*. All three are recommended to be implemented concurrently. 1. Collect and curate abundant plant specimens, photographs, and *in situ* data prior to local site extirpation. 2. Transplant plants into suitable habitat, upstream of populations to be inundated. Probability of failure is high, and plants may not survive beyond a few years. 3. Collect seeds, grow them out, and plant resulting plants somewhere else in suitable habitat. Probability of failure is high due to factors such as species (for example *Cylactis arcticus)* that produce seeds infrequently and non-viable seeds being produced and collected. *Also include in mitigations re: salvage efforts:* For salvage efforts 2 and 3 above, coordinate with the USFS to develop measures of success in the first two full growing seasons as indicated by monitoring, and provisions for what constitutes reasonable efforts expended. *Add the following mitigation:* If any USFS Sensitive plant or animal species or rare/local concern plant species of concern are found in the project area prior to or during implementation, consult with appropriate USFS specialists to determine the appropriate mitigation or avoidance action, which may include timing restrictions, relocation of specific project activities, or other measures. *A measure or measures should be added providing for additional surveys for special status wildlife and plant species* in all areas potentially impacted by project activities that have not been adequately surveyed to date. This may include, but would not be limited to all areas potentially affected by inundation, vegetation removal, staging, recreation site relocation, road improvement and construction, helispots, and quarries or other borrow activities. Section 4.9.1.2, page 4.315: In general, past studies have indicated that available habitat for rainbow and brown trout is maximized between 20 and 250 cfs. On the North Fork of the South Page 45 of 68	and recent event such as the 2002 drought and forest fires in publicly-owned watersheds that provide the majority of Denver Water's supply, Denver Water identified four needs…." ***Comment #738-80*** *(ID 3574)**:*** *Section 1.3.1.6, page 1-7: The analysis should include an alternative that considers interconnecting the raw water delivery for the south and north systems to address the imbalance in storage.* **Response #738-80:** Linking the South System and North System would not address the reliability, vulnerability and flexibility components of the Purpose and Need Statement. If Gross Reservoir empties, an interconnect requires the unimpeded operation of Denver Water's South System. Loss of operation of a portion of the South System could exacerbate the water supply reliability problem and possibly cause an interruption of service to customers if water cannot be delivered via the interconnect. Alternatives 4 and 5 evaluated during the screening process incorporated an interconnection between the South and North Systems. In addition, portions of Conduit X were included in several alternatives (Alternatives 2, 3, 4, 5, 10c, 10d, 10e, and 11). However, Conduit X in its entirety was not considered in lieu of the South System interconnects included in Alternatives 4 and 5. South System interconnects high in the system from either the North Fork South Platte River at the Roberts Tunnel to the Bear Creek drainage (Alternative 4a) or from Dillon Reservoir to the Clear Creek drainage (Alternative 5) were included in lieu of Conduit X to address the location component of the Purpose and Need statement. New firm yield must be provided to the Moffat Treatment Plant to address reliability, vulnerability, and operational flexibility issues. The

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Platte flow changes predicted under the proposed action and "Full Use of the Existing System" will greatly exceed 250 cfs from June through September. The DEIS states on p. 4-315 "in the North Fork South Platte River, there would be 22% higher flows with the Full Use of the Existing System…the increase in flow would be in June through October, the growing season for many aquatic organisms. This would tend to worsen the effects of the already high flows in this stream and have a minor to moderate detrimental effect." Section 4-13, page 4-378: The White River National Forest manages special use permits for five commercial outfitters that operate trips on the Blue River between Dillon and Green Mountain Reservoirs. The DEIS seems to indicate that long-term impacts of the Proposed Action would be negligible. We disagree that the impacts to recreational boating would be negligible given the nature of the already short "boatable" season. *Table 4.13:* The first column in this table compares available recreation days for minimum flows between 300 and 600 cfs. Current information indicates that this section of the Blue River is not floatable at flow rates less than 400 cfs. Please adjust your analysis to reflect this range of flows (400 – 600 cfs). Economic impacts to commercial outfitters should be disclosed in the DEIS. The Colorado River Outfitters Association report on commercial river use in the state of Colorado, 1988-2008, shows economic benefit of commercial use on the Blue River to be $825,804 in 2008. Section 4.14.1.1, Existing Land Uses: *First paragraph on page 4-393:* This section states the following: "Conflicts with USFS management direction include minor, permanent impacts to wildlife and plant habitats (refer to Section 4.5 Vegetation, and Section 4.7 Wildlife) and temporary impacts to recreational objectives for the duration of Project construction." USFS Management Indicator Species are briefly mentioned on p. 4-275; however Section 4.7 does not contain analysis of any other potential conflicts with USFS management direction, particularly the Forest Plans for the three affected Forests. See comments under Section 4.7.1.1 above. Section 4.9, Environmental Consequences for Aquatic Biological Resources: The third paragraph on page 4-307 discusses indirect and direct impacts to aquatic resources. The DEIS states that, "Most of the impacts to aquatic resources would be indirect and long-term, through changes in stream flow or the suitability of the stream to support aquatic life. Direct impacts would be very limited and temporary and would be limited to disturbances of reservoirs or short sections of streams during construction." The effects of the action are potentially indirect on fish populations (if not completely dewatered) and direct on habitat. There are two things happening here that need to be discussed individually, the effects on habitat and fish populations. They should not be combined. Page 46 of 68	lower in the South Platte River system the interconnect is located, the more vulnerable and potentially less reliable the Denver Water system is due to unplanned outages, including natural and manmade disasters. Denver Water's Collection System is vulnerable to natural and manmade disasters and system failures because approximately 90% of available reservoir storage and 80% of available water supplies rely on the unimpeded operation of Denver's South System. Loss of operation of any portion of the South System could require more water from the Moffat Collection System to meet customer's water demands. If an interconnect was located downstream of several of Denver Water's critical South System facilities, including Roberts Tunnel, Dillon Reservoir, Eleven Mile Reservoir, Cheesman Reservoir, Antero Reservoir, and Strontia Springs Reservoir, Denver Water's system would remain vulnerable to unplanned outages. Loss of operation to these South Platte River facilities could affect the ability to deliver water to a downstream interconnect. In summary, the Purpose and Need of the Project is to add new yield to the Moffat system at the location where it is needed. A connection between the North and the South System does not meet this Project purpose. Similarly, a South System connection does not help to reduce the imbalance of the system and the vulnerability created by that imbalance. Various alternatives that used the South Platte Basin as a component of an alternative were considered. In addition, these alternatives did not survive the Cost Screen because of the high cost of delivery to the Moffat Collection System. ***Comment #738-96*** *(ID 3575)**:*** *Section 1.3.1.6, page 1-7: The statement that "there*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Habitat simulation methods** IFIM does not simulate habitat relationships, PHABSIM does. PHABSIM "is a specific model designed to calculate an index to the amount of microhabitat available for different life stages at different flow levels; whereas, IFIM is a general problem–solving approach employing systems analysis techniques" (Stalnaker et al. 1995). **Life stages of Fish and Periodicity and Assumptions of Impact Analysis sections**: This information needs to be referenced. There is no discussion of critical habitat types modeled in either section, which is an integral part of the PHABSIM analysis. The DEIS should show what habitat needs are for various life stages and state how proposed flows affect those habitat types. The use of non-native trout in the modeling results is not representative of the system. Native cutthroat are not as impacted by high spring runoff as they typically begin spawning on the falling limb of the hydrograph. Rainbow trout are more affected because they a) begin spawning here during the rising limb of the hydrograph, and b) are acclimated to totally different flow regimes, which has limited their ability to thrive in Colorado. The modeling should have included native species, such as cutthroat trout, mountain sucker, or sculpin. PHABSIM is not just a trout model, and should not be treated as one. Section 4.9.1.2, Invasive Species: Aquatic nuisance species are a significant issue, and should be treated more seriously than they are in the DEIS, especially when it comes to water development infrastructure. "Therefore, conditions that result in more sedimentation (more worm habitat) may result in an adverse impact." State what conditions would result in more sedimentation. According to the analysis, the system is sediment-limited and the DEIS should state where this additional sedimentation comes from. "Therefore, conditions that result in elevated temperatures above 20 degrees C may have a beneficial impact on the incidence of whirling disease." Show how often such conditions would occur as temperatures that high could potentially lead to fish mortality depending on the length of time. Also, include a discussion on how brown trout are carriers of whirling disease; how they are responsible for spreading the disease; and how they are much more tolerant of warm stream temperatures. New Zealand mudsnails have been found in the Boulder Creek drainage. Therefore, it is possible that they could potentially infest the Project Area. This potential effect should be explored in more detail. The conclusions from the paper referenced in the Didymo discussion are not supported as to the whether or not Didymo would thrive in the Fraser River basin: a) "The analysis shows that a large component of the distribution of *D. geminata* can be attributed to climatic factors alone, ***at least at a continental scale***." – (Kumar et al. 2009 page 418) b) "The importance of the base-flow index in our results is supported by the observation that *D geminata* is common in **regulated rivers**…" – (Kumar et al. 2009 page 419) Page 47 of 68	*are no raw water conveyance facilities connecting the two (raw water collection) systems" is incorrect. DW regularly uses natural stream channels as raw water conveyances (e.g., Vasquez and South Boulder Creeks). According to DW employees, water exiting the Gumlick tunnel from the Williams Fork collection system (North system) can alternately be released to Clear Creek (rather than sent thru Vasquez tunnel to the Moffat tunnel). Water in Clear Creek can then be conveyed to the South Platte River in downtown Denver or into the existing South Boulder diversion canal that crosses Clear Creek to the Moffat Water Treatment Plant (WTP). Thus, Clear Creek represents a physical connection between part of the Moffat system and the South system. If needed, DW can exchange water from Clear Creek for South Platte River water higher up in the Platte watershed.* **Response #738-96:** Denver Water does not have the ability to divert water from Clear Creek to the Moffat Treatment Plant. The South Boulder Canal, which begins on South Boulder Creek just above Eldorado State Park and delivers water from Gross Reservoir to Ralston Reservoir, terminates at Ralston Reservoir. The South Boulder Canal does not connect to or cross Clear Creek. Denver Water can release water from the Gumlick Tunnel to Clear Creek instead of diverting it through the Vasquez and Moffat tunnels. The Corps evaluated numerous alternatives during the screening process that involved water conveyed via the Gumlick Tunnel to Clear Creek (refer to DEIS Section 2.1). At times, Denver Water does have opportunities to exchange water from the South Platte River to Ralston and/or Gross reservoirs. However, those times are limited by senior water rights and hydrologic conditions. When given the opportunity to divert less water from the West Slope by exchanging South Platte water, Denver Water

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project c) "We have established the climatic range for this species in the ***continental US***" and "Although we have examined bioclimatic factors that explain the presence-absence of *D geminata* at a ***continental scale***, we recognize that other factors may be relevant to the range expansion…" It is important to note that this research was not meant to be used at a regional level. Therefore, conclusions made based on the abstract alone of this paper are incorrect and misleading. It is also important to note that there are approximately 34 other water bodies in which Didymo could occur in the Project Area. There is a real risk associated with Didymo and if it were to spread (because it is present on the west slope as well as in South Boulder Creek), it would be detrimental to the fish species found in those other affected stream reaches. Again, the potential impact of aquatic nuisance species associated with project facilities and operations should be discussed in more detail. **Flushing Flows** This section of the DEIS appears to be making the case that flushing flows are bad and by diverting all the water during runoff, DW is benefitting the aquatic communities. High flows can in fact be a disturbance at times but are also important for forming and maintaining productive stream channels. Native cutthroat trout are not nearly as affected as some other non-native trout species. **Comparison of Current Conditions and Full Use of Existing System** The use of the comparison between the proposed action and Full Use is comparing two hypothetical situations for an effects analysis. State what these comparisons are based on and make a comparison to current conditions. State what the frequency will be that INDIVIDUAL tributaries will be dewatered. State how much more time they will be de-watered under DW's proposed action. Lumping streams together to discuss the changes in annual flow makes it impossible to accurately assess the effects of the proposed action on individual streams. Show how often individual streams are de-watered under current conditions. Show how much more they will be de-watered when the Proposed Action "extends the period when water does not pass the diversion" (Page 4-319) compared to current conditions. There is no consistency in the individual creek discussion sections in how the additional diversions are presented. Some are percentages, some are annual flow amounts, and some are both. This makes it difficult for reviewers to accurately assess effects Listed below are sentences from the DEIS referring to the availability of R2 Cross simulations. These simulations do not appear to be included in the effects analysis (except for brief Bobtail Creek discussion page 4-324). • "In addition to IFIM habitat data, CDOW provided R2 Cross habitat data for the Fraser River which will also be considered in the effects analysis of the alternatives" (page 3-222) Page 48 of 68	does so. ***Comment #738-81*** *(ID 3576)**:*** *Section 1.3.3, page 1-9: Under the City and County of Denver bullet, the DEIS states: "By charter, DW is required to provide an adequate supply of water to the people of the City and County of Denver for all uses and purposes". The DEIS contains little discussion of the effects of potential water conservation measures that may result in the consideration of other alternatives.* **Response #738-81:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 AF of demand in 2032 already reflects

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project • "R2 Cross simulations are available from CDOW for many of the Fraser River tributary streams, including Cabin, Elk, Hamilton, Iron, Jim, Meadow, Middle Fork Ranch, and Main Ranch" (page 3-233) • "R2 Cross data are available from the CDOW for Bobtail Creek and will be used in the effects analysis of the alternatives" (page 3-239) • R2 Cross data is presented in the Williams Fork tributaries discussion for Bobtail Creek (page 4-324). This data indicates that flows less than 1 cfs would not be sufficient to "fully maintain fish and invertebrates…" The DEIS indicates that the Proposed Action would reduce the flow passing the diversions and extend the period when these streams would be fully diverted, but there is no discussion of impacts of that. Show how fish will be impacted by the reduced flow and if fish are currently found below the diversions. Display what the impacts are of increased diversions. **Fraser River Tributaries** If fish were identified downstream of the diversions, how will an extension in the period of no flow past the diversion structure with the Proposed Action result in "minor adverse impacts" compared to Full Use? Describe these impacts. **Bypass Flows and City of Englewood ROW Stipulation Discussion** The DEIS mentions streams with bypass flows that would be reduced. The bypass flows associated with Englewood are not mentioned, although it is mentioned that with the Proposed Action those bypasses will be met. The DEIS should show if they be met with Full Use and state why these bypasses are different than the other Fraser River tributary bypasses. Show if the Englewood bypasses can be reduced. If so, explain how much more frequently those streams will have reduced bypass. Currently, there are only flumes at the bypass sites for the City of Englewood. Several of the flumes have non-functioning staff gages. According to the 1974 City of Englewood Revised Stipulations, Englewood should do or provide the following: • Install flumes or other stream measuring devices suitable for visual and/or recording determination of stream at locations specified by the Forest Supervisor • Furnish copies of water storage, release, and streamflow summary records maintained in conjunction with this project to District Ranger at established intervals, or cause the same to be done. Currently, the District has no rating tables on file for any of the flumes, which inhibits the USFS from determining if bypasses are being met. In addition to no rating tables, many of the staff gages are in disrepair or are non-existent. The flumes themselves are in disrepair, making them non-functional. Overall, the effects analysis needs a clear discussion of the impacts associated with increased water diversions. The DEIS state that they are there but not what they are. Section 4.13, Recreation: Recreation-related action alternatives denote a simple (in-kind) relocation of existing facilities with very little applicable analysis. For example, the Gross Reservoir Recreation Relocation Page 49 of 68	29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. ***Comment #738-97*** *(ID 3577)**:*** *Section 1.4.1, page 1-11: Figure 1-5 should be adjusted to reflect data on actual demand since the year 2000 because actual water use values diverge widely from the expected values. The demand curve has several issues, mainly tied to the fact that demands since 2000 were much lower than anticipated by the modeling. For example, actual demand in 2002 and 2003 was 216,000 AF versus the 312,500 AF predicted (31% error in demand forecast). Given that the demand curve was running in a negative direction since at least 2000, the intersection of the supply and demand curves should be pushed out considerably into the future. The Y-*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Plan dated 2008, shows that all south shore recreation sites will be relocated and recreation use consolidated. The lack of analysis for this and other similar recreation development around the reservoir suggests avoidance of typical recreation-related concerns such as pedestrian safety, user conflict associated with concentrated use, sustaining a positive recreation experience and dealing with unanticipated operational issues just to name a few. It does not appear that mitigations were considered in the effects analysis. Inundation and recreation site relocation will result in a change in use dynamics, extend cumulative affects well beyond the FERC boundary (Winiger Ridge and S. Boulder Creek), and prompt a number of changes to law enforcement and operational plans. The DEIS does not disclose affects related to: o Road relocation, duration of temporary closures, duration of water releases, constantly changing reservoir level, concentrating recreation use, not replacing existing day use and overnight camping opportunities lost to inundation (Winiger Ridge) and a number of other actions not adequately analyzed, will result in a shift in use dynamics. o Below high water mark (HWM) recreation management needs to consider greater HWM fluctuation and related safety and fishing access. o The action alternatives do not explore options for recreation site development, nor do they consider mitigation measures necessary to address changing demographics and recreation demand along the Front-Range. o Water release duration alters kayak and fishing opportunities. o Multiple year use of temporary roads and closure areas will result in inappropriate access and challenging operations during the implementation period. o The new location of Osprey Trailhead will be directly in the spillway zone (aesthetics and safety). o Staging area and stockpile area locations will restrict vegetation re-gen. Section 4.15, p.4-402-404, Visual Resources: The environmental effects are not analyzed fully. For example, "(t)he "bathtub ring" effect resulting from changes in reservoir elevations(e.g., releases, storage, fill rates) is **not** (emphasis added) illustrated in the photographic simulation. The amount of bare earth exposed by the "bathtub ring" effect would vary depending on reservoir operations. The unattractive visual contrast created by reservoir fluctuations would be similar to the Current Conditions (2006). Provide support for the assertion that "the dam itself would result in a negligible impact" The environmental consequences section of the DEIS does indicate that the proposed action will not be consistent with the Forest Plan management guidelines in terms of the scenery resource. The environmental consequences section of the DEIS does indentify the area adjacent to the Gross Reservoir as having a Visual Quality Objective (VQO) of Retention, and does state that "(i)t is not possible to completely mitigate the major short-term direct construction impacts in order to meet these objectives." And"(t)hese areas would not be compliant with management guidelines and would be considered major adverse long-term impacts." **Chapter 5** Page 50 of 68	*axis needs to be adjusted with the origin at 200,000 instead of 275,000 AF so that actual use values can be plotted on the graph. Demand projections produced by the (Integrated Resources Plan) IRP forecast model are an unacceptable basis for supply planning because the projections have not borne a close semblance to actual use. For instance, the amount of water expected from this Project on an annual basis is less than the error in the annual demand forecast. Using a 31% error value, actual demand in 2030 would be closer to 299,000 AF with supply at 345,000 AF for a surplus of 46,000 AF not including the 30,000 AF safety factor. Another flaw in the demand forecast model is that the proponents used the period 1973-1999 to generate the demand forecast when per capita use dropped substantially starting in 2000.* **Response #738-97:** Comparing the actual 2002/2003 demand of 216,000 AF/yr to the estimated unrestricted demand in the 2002 IRP is an incorrect comparison. A comparison should not be made on the demand in any one individual year to the average demand used for the entire study period. If a comparison is to be made, the actual 2002/2003 demand of 216,000 AF/yr should more accurately be compared to the total system demand of 285,000 AF/yr. In addition, there are specific reasons that the 2002 and 2003 actual demands were lower than modeled demands which would not necessarily carry over into future years (i.e., drought-related restrictions in 2002 and a wetter than average year in 2003). Denver Water has evaluated and explicitly incorporated the effects of conservation as a part of the Moffat Project EIS. The water demand forecasting model explicitly recognizes the conservation spending as providing downward pressure on water use per household during the

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project *Mountain pine beetle:* Cumulative effects related to mountain pine beetle and sediment supply are discussed in Section 5.6.9, Aquatic Resources on p. 5-47. However, mountain pine beetle is not mentioned prior to this section, such as earlier in the chapter when past, present, and reasonably foreseeable future actions are described, including climate change. Additionally, mountain pine beetle impacts are not discussed under other applicable resource sections including vegetation, wildlife, and special status species. Section 5.2.2, Past Land-Based Actions: The USFS has done vegetation treatments in some areas west of Gross Reservoir, as part of the Winiger Ridge Ecosystem Management project that should be considered in cumulative effects analysis. Section 5.3.2, Future Land-Based Actions: The USFS is currently developing a proposal for the Forsythe Fuels Treatment Project, which is expected to include areas in the vicinity of Gross Reservoir and should be considered in cumulative effects analysis. Section 5.6, Evaluation of Cumulative Effects, page 5-39: There does not appear to be any disclosure of the cumulative effects to stream morphology and sedimentation. Section 5.6.1, Surface Water page 5-39: There does not appear to be a separate cumulative effects section for water quality. Decreased water quality, algal growth, and decreased clarity in Shadow Mountain Lake have been an increasing problem over the last decade. One of the sources of water for Shadow Mountain Lake is water imported from the Fraser River through the Windy Gap project. The analysis should consider the cumulative effects, to nutrients and other pollutants, of loss of dilution in the Fraser River due to increased DW diversions combined with the effects of proposed increases in withdrawal for the Windy Gap project. Section 5.6.4, pages 5-42 and 5-43, Soils: The second full paragraph regarding cumulative impacts to soils in the Gross Reservoir area does not mention soil impacts from increasing recreational use, which will be further concentrated and magnified on National Forest System (NFS) land west of Gross Reservoir due to reservoir expansion, because the area available for recreation will be reduced. In addition, the USFS is currently developing a proposal for the Forsythe Fuels Treatment Project, which is expected to include areas near Gross Reservoir and may contribute to soil impacts. Section 5.6.5, pages 5-43 and 5-44, Vegetation: As mentioned above, the USFS has implemented past vegetation treatment west of Gross Reservoir as part of the Winiger Ridge project, and is developing a proposal for future fuels treatment for the Forsythe Fuels Treatment Project. Both projects should be considered in cumulative effects analysis. In addition, there is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources. Section 5.6.6, Riparian and Wetland Areas, Page 5-44: "Past and reasonably foreseeable future actions are not likely to have adverse effects on wetlands and riparian areas at Gross Reservoir…" This statement does not recognize the past effects of Gross Reservoir. When the reservoir was constructed, did it flood wetland and riparian areas? Page 51 of 68	1973 to 2000 era. Chapter 1 (Purpose and Need) states that of the projected shortfall in supplies, conservation measures would account for 16,000 AF/yr. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data from DRCOG, Colorado Department of Local Affairs or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. ***Comment #738-94*** *(ID 3570)**:*** *Section 1.4.1.4, page 1-14: This section mentions an intergovernmental agreement with Arvada. Discuss other intergovernmental agreements DW has for the water contained in the Moffat Collection System (System) and the additional demand these agreements place on the need for securing a reservoir site to provide extra water for a perceived future shortage. The analysis should determine if DW could be creating future shortage situations by extending new contracts.* **Response #738-94:** Denver Water has no other Intergovernmental Agreements to deliver additional water if the Moffat Project is permitted. Existing and future obligations for water delivery are included in FEIS Table 1-1. When Denver Water plans for future growth, conservation is considered in the demand estimates. As shown in FEIS Table 1-1, Denver Water's estimated 2032 demand is 379,000 AF/yr after adjusting for natural replacement and conservation savings (1980 to 2000), plus the Arvada contract of 3,000 AF/yr. Then, future anticipated conservation

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Section 5.6.7, page 5-45, Wildlife: The second sentence states, "But, reasonably foreseeable future actions are not likely to have adverse cumulative effects, beyond those associated with the Moffat Project alternatives, because no major actions are planned in this area." According to 40 CFR 1508.7 which is cited in Section 5.0 on p. 5-1, "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Cumulative impacts are not limited to "major" actions. Past, present, and reasonably foreseeable actions such as residential development and increase and/or displacement of recreation should be considered. There is no discussion of specific species or groups of species. Biology, including habitat requirements, varies greatly among wildlife species; therefore, effects including cumulative effects are different. There is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources. There is no discussion about the cumulative effects of reduction of winter concentration areas and severe winter range on the Clear Creek elk herd. Section 5.6.8, page 5-46, Special Status Species: *Second Paragraph:* This paragraph begins: "Other special status species have been less affected by past actions, but have limited formal protection from future actions under current conditions. However, if populations were to substantially decline they could be brought under the protection of the Endangered Species Act." Many "other special status species" have formal protection including federal laws such as the Migratory Bird Treaty Act, and state laws. On NFS land, USFS policy protects species and ecosystems. It is against USFS policy to cause a trend toward listing under the Endangered Species Act (ESA). Cumulative impacts to "other special status species" are discussed in this brief paragraph, presumably intended to include all special status species other than those listed under ESA which are discussed in the first paragraph. As described under Section 5.6.7 Wildlife above, species differ greatly in their biology and effects, including cumulative effects. This applies equally to special status plant and animal species, including USFS sensitive species and rare/local concern plant species. As noted under various sections in Chapters 3 and 4, no analysis of effects to individual plant species is presented, and individual plant species are also absent from cumulative effects analysis. There is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources. Section 5.6.9, Aquatic Resources, Page 5-46 and 5-47: "To summarize, Moffat Project alternatives would have none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments. Exceptions include minor adverse impacts to fish and invertebrates in South Boulder Creek upstream of Gross Reservoir…" This conclusion seems to completely ignore the impacts to aquatic habitat from the existing stream augmentation. Since this is the most significant impact to the creek, it is hard to understand how the cumulative effects analysis could ignore it. Page 52 of 68	savings (16,000 AF/yr) is backed out and Denver Water's estimated 2032 demand is 363,000 AF/yr (379,000 AF/yr average demand minus 16,000 AF/yr future conservation savings). ***Comment #738-95*** *(ID 3571)**:*** *Page 2-30, Water Source: "Long-term historic data suggest that approximately 45% of the inflow to Gross Reservoir comes from the South Boulder Creek basin, and about 55% is diverted from the Colorado River basin." It is not clear from this statement whether 45% of the storage in Gross Reservoir originates from the South Boulder Creek basin, or whether 45% of the streamflow (which may be passed through the reservoir) originates in South Boulder Creek. Our understanding is that the reservoir was primarily designed to store trans-basin diversions.* **Response #738-95:** The statement on page 2-30 refers to the flow in the river immediately above Gross Reservoir and not the amount stored in the reservoir. Most of the water supply originating in South Boulder Creek is called for by other downstream users. Gross Reservoir is primarily used to store trans-basin diversions. The text in the FEIS Section 2.3.2.1 (Subheading Water Source) was revised to clarify this. ***Comment #738-8*** *(ID 3572)**:*** *Section 2.4.2.1. page 2-42: The additional length of South Boulder Creek (and any other streams) to be inundated by the proposed expansion should be displayed as that is certainly a project effect. It would be useful to include that figure in the component description.* **Response #738-8:** The discussion of Alternative 1c is appropriate here since Chapter 2 is meant to describe alternative

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project "Cumulative impacts to aquatic resources would be negligible, except for minor adverse impacts to fish and invertebrates in the North Fork Ranch Creek (tributary of the Fraser River), McQueary, Jones, Bobtail, and Steelman creeks (tributaries of the Williams Fork River)." Discuss if frequent and extended periods of dewatering from the existing diversions, on these and other streams, might have some impact on fish and fish habitat. Section 5.6.19, page 5-56: The fact that the Fraser River has little boating may be due to the reduced flows due to transbasin diversions. If the flows allowed, boating would occur as it does now in the floatable sections such as the canyon and therefore further flow declines may increase the impact to this recreation use. Section 5.3.1, page 5-20: Under the Grand County full build out scenario, the cumulative effects in Grand County are predicted to include municipal and domestic water supply shortages and potential failure of waste water treatment plants to meet water quality requirements in effluent discharge permits. Share any proposed mitigation for water supply shortages in Grand County caused by this Project. APPENDIX G: BIOLOGICAL RESOURCES *Table G-1: Federal and State Listed Endangered or Threatened Species and Occurrence in the Project Area, p. G-2:* In this table, Ute ladies'-tresses orchid and Colorado butterfly plant are notated as "not present- habitat is unsuitable or outside current known range" for the Gross Reservoir area. The Biological Assessment (BA) submitted by the ACOE to FWS states on p. 32 that Ute ladies'-tresses orchid is not present at Gross Reservoir. The BA mentions, also on p. 32, that habitat evaluations for Ute ladies'-tresses conducted around Gross Reservoir in 1998 concluded no potential habitat was present. Table 4-1 on p. 20 of the BA assigns a status of "0" also defined as "not present-habitat is unsuitable or outside current known range" to both Ute ladies'-tresses orchid and Colorado butterfly plant and does not analyze them for the Gross Reservoir area, and neither species is analyzed in the DEIS Section 4.8.1.1 for the Gross Reservoir area. The USFS feels both of these species could be present and requests copies of the documents, particularly those areas around Gross Reservoir, to support these conclusions and the exclusion of both of these species from further analysis for the Gross Reservoir. The USFS also requests copies of the document of habitat assessments and/or surveys, conducted during appropriate times in the growing season by qualified personnel, for both of these species for other areas potentially impacted by project activities including water depletions. *Table G-3: Other Special Status Species Occurrence in the Project Area:* Table G-3 in the DEIS Appendix G is missing some USFS (USFS) Sensitive wildlife species, many USFS Sensitive plant species, and most USFS Management Indicator Species (MIS) although MIS are listed in Table 3.7-3 of the DEIS. In addition, although some plant species tracked by the Colorado Natural Heritage Program (CNHP) which are not USFS Sensitive are listed in Table G-3, many plant species of local concern to the USFS are not included. Species missing from Table G-3 include: 1) several plant species of local concern and one USFS Sensitive plant species found by DW consultants during surveys for the 2001 relicensing, some populations of which will be presumed to be inundated by the proposed reservoir expansion; 2) a plant species documented to occur by the CNHP in the Winiger Gulch Potential Conservation Area (PCA) that is also presumed to be inundated by the proposed expansion; and 3) other plant species of local concern Page 53 of 68	components, not Project effects. Project effects related to the expansion of Gross Reservoir are disclosed in FEIS Section 5.8.2.1, which states: The majority of impacts to other waters of the U.S. would result from reservoir filling and include: • 2.36 acres (2,178 feet) to South Boulder Creek upstream of the reservoir • 0.20 acre (646 feet) to Forsythe Gulch • 0.02 acre (125 feet) to Winiger Gulch tributary • 0.16 acre (1,477 feet) to Winiger Gulch • 0.07 acre (692 feet) to the unnamed southern tributary ***Comment #738-79*** *(ID 3573)**:*** *Section 3.0, page 3-5: Sampling Sites, Fraser River Basin: The choice of the four sampling sites selected for the Fraser basin do not appear to represent the effects of diversions on all streams for the following reasons: • Each of the streams either has bypass flows or is downstream of a confluence with streams that have bypass flows. This is not representative of the effects of DW's diversion system. The Fraser diversion system diverts from 31 streams. Only 10 of the streams have bypass flow provisions. • Each of the streams is large in the context of streams in the Fraser basin. The majority of diverted stream are much smaller. • None of the sites is located immediately below diversions, where the effects of diversion are most pronounced.* **Response #738-79:** Additional sediment sampling and modeling sites were added immediately below diversion locations to assess stream morphology responses at these areas, including a site with no bypass flows. Existing conditions were evaluated and documented at other diversion points to assess stream conditions. Historic aerial photographs were evaluated to define

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project for the ARP which may or may not have been included in past or recent surveys. Table G-3 footnotes do not specify the date(s) of USFS Sensitive species lists obtained for this analysis, and do not mention obtaining a list of rare plants and communities from the Forest as specified in Study Request No. 7 (excerpt below). Following are excerpts from USFS Study Requests where the need for the information described above was stated: Study Request No. 7 - Project Area Sensitive and Rare Plant Survey: "Rare plants" for this study is defined as comprising 1) plants listed or proposed for listing under the Endangered Species Act, 2) the most current USFS Region 2 list of Sensitive Plants, and 3) all other rare Plants of Local Concern, all three groups of which are as identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area (e.g., riparian plants potentially impacted by downstream water depletions or changes in reservoir/downstream hydrology flow rates, levels, or timing, rare plants occupying off-site borrow pits; etc.). "Rare plant communities" include those identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area. Note that these definitions do not necessarily include plants that are otherwise tracked by the Colorado Natural Heritage Program. The most current lists of rare plants and communities to survey must be derived in concert with the Forest. Study Request No. 8 - Special-Status Terrestrial Wildlife Species and Habitats, Including Amphibians and Invertebrates: Analysis of effects to special-status species should include ESA-listed (endangered, threatened, and candidate) taxa; USFS sensitive species based on the current Region 2 list, and management indicator species (MIS) for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP); all categories currently tracked by the Colorado Natural Heritage Program (CNHP), including plants, birds, mammals, fish, invertebrates, and natural communities (plants, natural communities, and fish are covered in other study requests); species of local concern specific to the project, if any, and migratory birds not included in the above categories. The tables below contain species lists applicable to the Arapaho and Roosevelt National Forests and Pawnee National Grasslands (ARP), current as of December 2009. Federally Proposed, Threatened, and Endangered species are displayed in Table 1; USFS Sensitive Species in Tables 2A and 2B; Management Indicator Species in Table 3; and Plant Species of Local Concern in Table 4. This document includes terrestrial wildlife and plant species. See Fish comments for fish and other aquatic species. All species listed in these tables should be considered for analysis for projects on the ARP, and reasons for exclusion from analysis should be documented. Tables 2B (USFS Sensitive Plants) and 4 (Plant Species of Local Concern) indicate which plant species should be surveyed for and included in analysis, and probability of occurrence in the Gross Reservoir area. Plant species in Tables 2B and 4, particularly species that occupy riparian areas, wetlands, or fens, should also be considered for analysis for the River Segments. Page 54 of 68	past stream responses. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-12*** *(ID 3590)**:*** *Section 3.1.5.1, Page 3-22, Fraser River, paragraph 1: The DEIS states: "As a result, DW, at times, diverts all the stream flow from tributaries in the Fraser River basin that do not have minimum bypasses. This results in no stream flow for some distance below the diversions. This is how DW has operated in the past and plans to operate in the future. The DEIS should discuss how DW plans to minimize their impact to channel morphology and aquatic habitat in these diverted streams.* **Response #738-12:** Effects on aquatic biological resources and geomorphology on tributaries without bypass flows are disclosed in DEIS Chapter 4. FEIS Appendix M presents the plan to provide compensatory mitigation for unavoidable adverse effects associated with the proposed Moffat Project. Proposed mitigation measures related for aquatic biological resources include establishing a viable Colorado River cutthroat fishery in a suitable location in Grand County. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The hydrologic effects in these diverted streams that are associated with Denver Water's existing operations and additional diversions that would

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Table 1: Federally Listed Species that may occur on the ARP or that may be impacted by water depletions or changes in water levels** Based on FWS Colorado Field Office County List Updated June 2009 **Common Name** / **Scientific Name** / **Status** ***BIRDS*** ▲ Whooping crane — *Grus americana* — Endangered ▲ Least tern (interior population) — *Sterna antillarum* — Endangered ▲ Piping plover — *Charadrius melodus* — Threatened ***MAMMALS*** Mexican spotted owl — *Strix occidentalis lucida* — Threatened Preble's meadow jumping mouse — *Zapus hudsonius preblei* — Threatened Canada lynx — *Lynx canadensis* — Threatened ***PLANTS*** ▲ Ψ Colorado butterfly plant — *Gaura neomexicana* ssp. *coloradensis* — Threatened ▲ Western prairie fringed orchid — *Platanthera praeclara* — Threatened ▲ ** Ute ladies'-tresses — *Spiranthes diluvialis* — Threatened Penland alpine fen mustard — *Eutrema penlandii* — Threatened Ψ Osterhout milkvetch — *Astragalus osterhoutii* — Endangered Ψ Penland beardtongue — *Penstemon penlandii* — Endangered Ψ North Park phacelia — *Phacelia formosula* — Endangered **Note**: ▲ water depletions in the South Platte River watershed may affect these species Ψ these species are suspected to occur but unconfirmed on the Arapaho/Roosevelt National Forest Page 55 of 68	occur as Denver Water's demand grows to Full Use of their Existing System are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Additional detailed sediment sampling and modeling along with assessment of stream segments below diversion points were conducted. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-13*** *(ID 3591)**:*** *Section 3.1.5.1, Page 3-24, Water Quality: It would be useful to provide a summary of what the Surface Water Classifications mean. For most readers, Aquatic Life Class 1 and Recreation E do not have inherent meaning.* **Response #738-13:** FEIS Section 3.1.5.1 has been modified to include the definitions of surface water classifications. ***Comment #738-14*** *(ID 3592)**:*** *Section 3.1.5.1, Page 3-25, Temperature section: Discuss whether channels that go dry because of water diversion will be in compliance with water temperature standards.*

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project * The Federal Action Area for this project for all species included in this table is defined as the project area. ** water depletions in the Colorado River watershed may affect this species **Table 2A: Region 2 USFS Sensitive Species for the ARP** TERRESTRIAL WILDLIFE Based on USFS Manual, Rocky Mountain Region (Region 2), FSM 2600 – Wildlife, Fish, and Sensitive Plant Habitat Management, Chapter 2670-1 – Threatened, Endangered, and Sensitive Plants and Animals, Supplement No. 2600-2009-1, Effective June 9, 2009. **Common Name** / **Scientific Name** / **MIS/Indicator Community** ***MAMMALS*** American marten / *Martes americana* / No Black-tailed prairie dog / *Cynomys ludovicianus* / Yes / Prairie dog towns ☼▼ Fringed myotis / *Myotis thysanodes* / No Pygmy shrew / *Sorex hoyi montanus* / No River Otter / *Lontra canadensis* / No Rocky Mountain bighorn sheep / *Ovis Canadensis canadensis* / Yes/openings Swift fox / *Vulpes velox* / No Townsend's Big-eared bat / *Corynorhinus townsendii* / No Ψ White-tailed prairie dog / *Cynomys leucurus* / No North American Wolverine / *Gulo gulo* / No ***BIRDS*** ☼American bittern / *Botaurus lentiginosus* / No American peregrine falcon / *Falco peregrinus* / No American three-toed woodpecker / *Picoides dorsalis* / No Bald eagle / *Haliaeetus leucocephalus* / No Page 56 of 68	**Response #738-14:** Per CDPHE Regulation No. 31, if the stream is in compliance when there is flow, then the stream is in compliance with temperature standards when dry. This regulation states: "Low-flow excursion: ambient water temperature may exceed the criteria in Table 1 or the applicable site-specific standard when the daily stream flow falls below the acute critical low flow or monthly average stream flow falls below the chronic critical low flow, calculated pursuant to Regulation 31.9(1)." The proposed Project would not change existing bypass flow requirements for the Moffat or Williams Fork collection systems. ***Comment #738-63*** *(ID 3593)**:*** *Section 3.1.5.1, Page 3-25, Temperature: Without some sort of explanation of terms, it is not inherently meaningful to refer to Cold Stream Tier 1 or Tier 2. It would be useful to provide a summary or definition.* **Response #738-63:** FEIS Section 3.1.5.1 has been modified to include definitions of cold stream tiers. ***Comment #738-99*** *(ID 3586)**:*** *Section 3.1.5.2, Page 3-33, Williams Fork River, Floodplain section: Just because the Williams Fork River has not been mapped by FEMA, it should not preclude an evaluation and assessment of the potential impact of the proposed action on floodplains in the Williams Fork River drainage* **Response #738-99:** FEIS Section 4.6.1 describes the change in flood flows and floodplain extent from Current Conditions (2006) to the Project alternatives for two points in the Williams Fork Basin. The "River Segments" subheadings of FEIS Section 5.1 describe potential impacts of the alternatives on the Williams Fork floodplain at the same two points.

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Common Name** / **Scientific Name** / **MIS/Indicator Community** Black swift — *Cypseloides niger* — No Black tern — *Chlidonias niger* — No Boreal owl — *Aegolius funereus* — No Brewer's sparrow — *Spizella breweri* — No Burrowing owl — *Athene cunicularia* — Yes / Prairie dog towns Cassin's sparrow — *Aimophila cassini* — No Chestnut-collared longspur — *Calcarius ornatus* — No Ferruginous hawk — *Buteo regalis* — Yes / Shortgrass & midgrass prairie Flammulated owl — *Otus flammeolus* — No Grasshopper sparrow — *Ammodramus savannarum* — No ▼ Greater sage-grouse — *Centrocercus urophasianus* — No ☼Lewis' woodpecker — *Melanerpes lewis* — No Loggerhead shrike — *Lanius ludovicianus* — No Long-billed curlew — *Numenius americanus* — No McCown's longspur — *Calcarius mccownii* — No Mountain plover — *Charadrius montanus* — Yes / Shortgrass Prairie Northern goshawk — *Accipiter gentilis* — No Northern harrier — *Circus cyaneus* — No Olive-sided flycatcher — *Contopus borealis* — No Purple martin — *Progne subis* — No White-tailed ptarmigan — *Lagopus leucurus* — No ▼ Yellow-billed cuckoo — *Coccyzus americanus occidentalis* — No Page 57 of 68	The Williams Fork Basin is very undeveloped, with no population center and only unpaved roads. The only infrastructure in the Williams Fork Basin is isolated ranch buildings and the Henderson mill and mine. With low hazard to human life and property, Federal Emergency Management Agency (FEMA) has not mapped the Williams Fork Basin, just as it has not mapped, for example, the rural section of the Fraser River Basin from Fraser to Granby. Accordingly, FEMA floodplain classifications are not included in DEIS or FEIS Chapter 3. ***Comment #738-62*** *(ID 3587)**:*** *Section 3.1.5.5, Page 3-52, South Boulder Creek: Discuss what type of annual and long-term maintenance occurs on the channel and whether any agencies, including the ACOE and USFS, provide input for this work. The DEIS should show how providing longer duration flows in South Boulder Creek when it is near peak hydraulic capacity will affect channel stability because of increased flow volume from the System. Show the natural hydraulic capacity of South Boulder Creek between the Moffat Tunnel outflow and Gross Reservoir. Understanding potential channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions. Is there a minimum flow requirement on South Boulder Creek between the Moffat Tunnel outflow and Gross Reservoir? The DEIS should present information on the low flow habitat conditions along this stream segment.* **Response #738-62:** There is not a minimum flow requirement on South Boulder Creek between the East Portal of Moffat Tunnel and Gross Reservoir. Information on low flow habitat conditions is not needed since Denver Water's additional deliveries through Moffat Tunnel would augment flows in South Boulder Creek

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Common Name** / **Scientific Name** / **MIS/Indicator Community** ***AMPHIBIANS*** Boreal toad — *Bufo boreas boreas* — Yes / Montane riparian & wetlands Northern leopard frog — *Rana pipiens* — No Wood frog — *Rana sylvatica* — No ***INSECTS*** Hudsonian emerald — *Somatochlora hudsonica* — No Ψ Regal fritillary butterfly — *Speyenia idalia* — No Note: Ψ These species are suspected to occur but unconfirmed on the Arapaho/Roosevelt National Forest. ☼These species are suspected to occur but unconfirmed on the Pawnee National Grassland. ▼These species not known or suspected to occur on NFS land, however they may occur in the planning area vicinity. **Table 2B: Region 2 USFS Sensitive Species for the ARP** **PLANTS** Based on USFS Manual, Rocky Mountain Region (Region 2), FSM 2600 – Wildlife, Fish, and Sensitive Plant Habitat Management, Chapter 2670-1 – Threatened, Endangered, and Sensitive Plants and Animals, Supplement No. 2600-2009-1, Effective June 9, 2009. **Common Name** / **Scientific Name** / **Survey and Analyze for Gross Reservoir Expansion** / **Probability of Occurrence in Gross Reservoir Area** Ψ Sea pink — *Armeria maritima* var. *siberica* — No — N/A ☼Dwarf milkweed — *Asclepias uncialis* — No — N/A Ψ Park milkvetch — *Astragalus leptaleus* — **Yes** — **Low** Page 58 of 68	between the Moffat Tunnel outflow and Gross Reservoir in average and wet years. There would be no change in flows in dry years when low flow conditions occur. Regarding maintenance on the channel, Denver Water crews inspect the stream bank for signs of erosion through-out the year. Additionally, if other agencies, groups, or citizens report bank stability problems to Denver Water, Denver Water would send someone to inspect the area of concern and repairs are made as needed. Since South Boulder Creek is a water of the U.S., Denver Water obtains permits from the Corps prior to bank stability projects. Since a majority of the stream channel is owned by Denver Water or other private landowners, coordination does not typically occur with the USFS. The stream channel between the East Portal of Moffat Tunnel and Gross Reservoir was channelized to prevent flooding of land, roads, bridges, and the railroad. The capacity of South Boulder Creek within this reach is approximately 1,200 cfs at Pinecliffe. During high runoff, Denver Water must limit Moffat Tunnel deliveries in order to meet this constraint. While the peak flows in this reach would not change with the Moffat Project on-line, flows would be at the peak hydraulic capacity for a longer duration in some years. The increase in duration that flows would be at the peak hydraulic capacity of the channel could lead to localized bed and bank erosion. The natural hydraulic capacity of South Boulder Creek between the Moffat Tunnel outflow and Gross Reservoir prior to channelization is not needed to evaluate the effects of the Moffat Project on channel stability. Changes in sediment transport capacity and the stream's erosive energy resulting from the proposed Project are presented in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Upswept moonwort — *Botrychium ascendens* — Yes — Low ☼Prairie moonwort — *Botrychium campestre* — No — N/A Fork-leaved moonwort — *Botrychium "furcatum"* — Yes — Low Ψ Slender moonwort — *Botrychium lineare* — Yes — Medium Paradox moonwort — *Botrychium paradoxum* — Yes — Low Lesser panicled sedge — *Carex diandra* — Yes — Low Livid sedge — *Carex livida* — Yes — Low ☼ Sandhill goosefoot — *Chenopodium cycloides* — No — N/A Yellow lady's-slipper — *Cypripedium calceolus* spp. *parviflorum* — Yes — Medium to high Clawless draba — *Draba exunguiculata* — No — N/A Gray's peak whitlow-grass — *Draba grayana* — No — N/A Roundleaf sundew — *Drosera rotundifolia* — No — N/A Stream orchid — *Epipactis gigantea* — Yes — Low to Medium Dropleaf buckwheat — *Eriogonum exilifolium* — No — N/A Slender cottongrass — *Eriophorum gracile* — No — N/A Hall's fescue — *Festuca hallii* — No — N/A Ψ Weber's scarlet-gilia — *Ipomopsis aggregata* ssp. *weberi* — No — N/A Simple kobresia — *Kobresia simpliciuscula* — No — N/A Colorado Tansy-aster — *Machaeranthera coloradoensis* — Yes — Low Ψ Adder's-mouth — *Malaxis brachypoda* — Yes — Medium Budding monkeyflower — *Mimulus gemmiparus* — Yes — Low Kotzebue's grass of Parnassus — *Parnassia kotzebuei* — No — N/A Page 59 of 68	morphology resulting from existing flow increases was completed using historic photos as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 3.3. ***Comment #738-10*** *(ID 3588)**:*** *The water chemistry data collected at the two monitoring sites on the North Fork of the South Platte River should be displayed to provide a better understanding of the interpretations of water quality changes discussed in the DEIS.* **Response #738-10:** Water quality data for the North Fork South Platte River was shown in DEIS Tables 4.1-23, 4.1-24, and 4.1-25. That data was retained in FEIS Section 3.2. ***Comment #738-11*** *(ID 3589)**:*** *Can DW implement Full Use existing now? Are the adequate water rights and facilities in place to accommodate this alternative?* **Response #738-11:** The Full Use of the Existing System reflects the operation of Denver Water's existing system at an average annual demand of 345,000 AF/yr. This is the maximum yield of their existing water supplies using their current facilities and infrastructure. If Denver Water's demands were 345,000 AF/yr today, it would be operating at Full Use of the Existing System. However, Full Use of the Existing System is not an alternative that can be analyzed in the EIS. Rather, it is a hydrologic modeling scenario used to represent conditions when Denver Water grows into its existing system for comparison with current hydrologic conditions at an average annual demand of 285,000 AF/yr. This is described in detail in DEIS Section 4.1 and Appendix H-1.

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Ψ Harrington beardtongue — *Penstemon harringtonii* — No — N/A Rocky Mountain cinquefoil — *Potentilla rupincola* — **Yes** — **Low to Medium** Greenland primrose — *Primula egaliksensis* — **Yes** — **Low** Tundra buttercup — *Ranunculus karelinii* — No — N/A Dwarf raspberry — *Rubus arcticus* ssp. *acaulis (Cylactis arctica* ssp. *acaulis)* — **Yes** — **KNOWN IN PROJECT AREA** Silver willow — *Salix candida* — **Yes** — **Low** Ψ Autumn willow — *Salix serissima* — **Yes** — **Low** Sphagnum (peat moss) — *Sphagnum angustifolium* — **Yes** — **Low** Baltic sphagnum — *Sphagnum balticum* — **Yes** — **Low** Lesser bladderwort — *Utricularia minor* — **Yes** — **Low** Ψ Selkirk's violet — *Viola selkirkii* — **Yes** — **Medium** **Table 3: Management Indicator Species (MIS)[1]** **For Arapaho and Roosevelt National Forests** **Does Not Include MIS for Pawnee National Grassland** **Common Name** — **Scientific Name** — **Management Indicator Community** ***MAMMALS*** Rocky Mountain bighorn sheep — *Ovis Canadensis canadensis* — Openings Elk — *Cervus elaphus* — Young to Mature Forest & Openings Mule deer — *Odocoileus hemionus* — Young to Mature Forest & Openings Page 60 of 68	***Comment #738-9*** *(ID 3582)**:*** *There is not a clear summary of the existing conditions in the North Fork of the South Platte and the South Platte River. Water quality, water quantity, geomorphology, aquatic habitat, riparian habitat and aquatic organisms need to be better described under all scenarios. There needs to be a more thorough comparison of the baseline/existing conditions with the Full Use Existing and Full Use Proposed Action.* **Response #738-9:** Please see the response to Comment ID 3663. Existing water quantity conditions in the North Fork South Platte River and the South Platte River are adequately described in DEIS Sections 3.1.5.6 and 3.1.5.7. The discussion of water quality for the North Fork South Platte River and the South Platte River was revised in Section 3.1 of the FEIS to provide a clearer description and summary of existing conditions. Existing conditions of riparian habitat along the North Fork South Platte was described in DEIS Section 3.6.5.6. Existing conditions for riparian habitat along the South Platte River was described more briefly in DEIS Section 3.6.5.7, but additional information was provided in Section 3.7.5.7. These sections provide adequate information for analysis of impacts to riparian areas along these rivers. Existing conditions on geomorphology are provided in Section 3.3 of the FEIS. Analysis of potential geomorphological impacts was expanded and includes an evaluation of historic aerial photographs to assess past morphologic responses to supplement numeric modeling. This information is provided in FEIS Section 4.6.3. The DEIS and the FEIS incorporate available data on the aquatic environment of the North Fork South Platte River and South Platte River. The North Fork South Platte River is not the focus of intensive fish management by CPW and is not sampled very frequently.

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project **Table 4: Plant Species of Local Concern for the ARP** **All Species Listed in This Table Should Be Surveyed for and Analyzed** **For the Gross Reservoir Expansion** Page 61 of 68	However, the available recent and historic data indicate that fish species composition is stable over the last few decades and fish abundance shows no changing trends. Therefore, the available data are adequate to describe the existing environment and as a basis for impact evaluation. The description of aquatic resources has been updated in the FEIS in Section 3.11 to include recent information. ***Comment #738-98*** *(ID 3583)**:*** *The DEIS states: "The North Fork South Platte River would see annual deliveries from Roberts Tunnel increase; this would increase phosphorus loading to both the North Fork South Platte River and Chatfield Reservoir, resulting in a long-term minor impact to water quality." How close are the affected stream segments of the North Fork of the South Platte and South Platte River to exceeding water quality standards, as set by the Colorado Department of Public Health and Environment (CDPHE)?* **Response #738-98:** There are no water quality standards for phosphorus on the North Fork South Platte River. As shown in DEIS Table 4.1-25, the 85th percentile for phosphorus data upstream of the Roberts Tunnel is 0.04 milligrams per liter (mg/L) and is 0.02 mg/L downstream of the Roberts Tunnel. Thus, Roberts Tunnel deliveries appear to be diluting the background concentration of phosphorus. The water quality standard in Chatfield Reservoir, significantly downstream of the Roberts Tunnel, is 0.03 mg/L (CDPHE Regulation 73). ***Comment #738-100*** *(ID 3584)**:*** *Section 3.1.5.7, South Platte River: The South Platte Protection Plan (SPPP) was signed in 2003 by a diverse group of stakeholders (including DW) with the intent to protect outstandingly remarkable values (ORVs) on the South Platte River. The identified*

Common Name	Scientific Name	Management Indicator Community
BIRDS		
Golden-crowned kinglet	*Regulus satrapa*	Interior Forests
Hairy woodpecker	*Picoides villosus*	Yung to Mature Forest
Mountain bluebird	*Sialia curnicoides*	Openings
Pygmy nuthatch	*Sitta pygmaea*	Old Growth
Warbling vireo	*Vireo gilvus*	Aspen Forest
Wilson's warbler	*Wilsonia pusilla*	Montane Riparian and Wetlands
AMPHIBIANS		
Boreal toad	*Bufo boreas boreas*	Montane riparian & wetlands

[1]Species is addressed under multiple categories; MIS, Sensitive and/or Federally Listed

Common Name	Scientific Name	Probability of Occurrence in Gross Reservoir Area
FERNS, all except *Cystopteris fragilis*	*Various*	High
Larimer aletes	*Aletes humilis*	Low
Wild sarsaparilla	*Aralia nudicaulis*	KNOWN IN PROJECT AREA
Paper birch	*Betula papyrifera*	Low
Triangle-leaved moonwort, green-stemmed phase	*Botrychium lanceolatum* ssp. *"viride"*	Low
Leather leaf grapefern	*Botrychium multifidum*	Low to Medium

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project Northwestern moonwort — *Botrychium pinnatum* — Low "Redbank" moonwort — *Botrychium "redbank"* — Low Lease moonwort — *Botrychium simplex* — Low to Medium Rattlesnake fern — *Botrypus virginianus* — Low to Medium Dewey sedge — *Carex deweyana* — KNOWN IN PROJECT AREA Woolyfruit sedge — *Carex lasiocarpa* — Low Mud sedge — *Carex limosa* — Low Peck's sedge — *Carex peckii* — Low Sprengel's sedge — *Carex sprengelii* — KNOWN IN PROJECT AREA Enchantress's nightshade — *Circaea alpina* — KNOWN IN PROJECT AREA Purple cinquefoil — *Comarum palustre* — Medium to High Yellow coralroot — *Corallorhiza trifida* — Medium Spring coralroot — *Corallorhiza wisteriana* — Medium Bunchberry — *Cornus canadensis* — Low Hazelnut — *Corylus cornuta* — Medium Rattlesnake-plantain — *Goodyear repens* — Medium Tall blue lettuce — *Lactuca biennis* — KNOWN IN PROJECT AREA Rocky Mountain blazing star — *Liatris ligulistylis* — Low Wood lily — *Lilium philadelphicum* — Low to Medium Northern twayblade — *Listera borealis* — Low Broadlipped twayblade — *Listera convallarioides* — Low Heartleaved twayblade — *Listera cordata* — High Utah lupine — *Lupinus lepidus* var. — Low Page 62 of 68	*ORVs were: historical resources, cultural resources, fisheries, geologic, recreational, scenic, and wildlife. The SPPP includes the South Platte downstream of Eleven Mile Dam to the confluence with the North Fork and the North Fork upstream to the town of Ismont, sections that are within the boundary of the National Forest and potentially affected by the proposed action. This plan was put forth as an alternative to the Pike-San Isabel National Forest's recommendation for designation of the South Platte River under the Wild and Scenic Rivers (WSR) Act. On page 3-58 the DEIS states that the SPPP includes a Streamflow Management Plan, under which DW committed to minimum outflows from Eleven Mile Canyon and Cheesman reservoirs. The DEIS indicates that this commitment may not be achievable under the proposed action: "All operations under the South Platte Protection Plan are subject to the principle of no loss of existing or future water supply. It is possible that conditions could occur under which DW would reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs." More information is needed to understand the impact to streamflow management guidelines agreed upon in the South Platte Protection Plan. There is no further mention of the SPPP in the DEIS and specifically no discussion of how the proposed action would affect the agreements set forth in the plan. Was the South Platte Enhancement Board, the governing body for the SPPP, consulted during the alternative development process? How will the proposed action affect the SPPP agreement? Provide a clear review of how the proposed alternatives would meet the requirements of the Plan, including protecting the Outstanding Remarkable Values (ORV) identified along the mainstem and North Fork of the South Platte River. As stated above, the SPPP was developed as an alternative to WSR Designation. In Chapter 4 – Environmental Consequences there is*

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project |		| |---|---|---| | | *utahensis* | | | Stiff club-moss | *Lycopodium annotinum* | Low | | Fringed loosestrife | *Lysimachia ciliata* | Medium to High | | Leechleaf blazingstar | *Mentzelia sinuata* | Low | | Buckbean | *Menyanthes trifoliata* | Low | | Sweet coltsfoot | *Petasites sagittatus* | Low | | Slivery primrose | *Primula incana* | Low | | Pictureleaf wintergreen | *Pyrola picta* | Low to Medium | | Maryland sanicle | *Sanicula marilandica* | KNOWN IN PROJECT AREA | | False melic | *Schizachne purpurascens* | KNOWN IN PROJECT AREA | | All other Sphagnum species not included as Sensitive | *Sphagnum* spp. | Low | **Table 5: Plant Communities of Local Concern for the ARP** **All Communities Listed in This Table Should Be Surveyed for and Analyzed** **For the Gross Reservoir Expansion** | Common Name | Scientific Name | Probability of Occurrence in Gross Reservoir Area | |---|---|---| | Colorado blue spruce | *Picea pungens* | KNOWN IN PROJECT AREA | | Ponderosa pine/spike fescue | *Pinus ponderosa/leucopoa kingii* | Medium to high | | Ponderosa pine/antelope bitterbrush | *Pinus ponderosa/Purshia tridentata* | Medium to high | | Relictual prairie grass riverine community | *Spartina pectinata-Sorghastrum avenaceum-Andropogon gerardii-* | | Page 63 of 68	*no analysis of the effects of the proposed action on the values that could impact the ORVs. If ORVs are impacted under this Project, the Forest may need to reconsider Wild and Scenic designation for the mainstem and North Fork of the South Platte. In 2004, the Pike-San Isabel Forest Plan was amended "…to establish a new management area along the South Platte River between Elevenmile Reservoir and Strontia Springs Reservoir, and along the North Fork of the South Platte River from below Bailey to the confluence with the South Platte River. These portions of the rivers were found to be eligible for consideration as potential Wild and Scenic Rivers." The purpose of this management area designation is to protect the river values that were identified during the eligibility study. Thus, we are concerned about potential impacts to these two river segments.* **Response #738-100:** The Proposed Action would not change the likelihood of conditions under which Denver Water may reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs to insure no loss of yield. The Proposed Action would not affect the South Platte Protection Plan (SPPP) agreement or Denver Water's ability to meet minimum outflows from Eleven Mile Canyon and Cheesman reservoirs. Any reduction in bypass flows or other proposed flow regimes would be a function of Denver Water's existing operations, not the proposed Moffat Project. If it is determined that operations under the SPPP would result in loss of existing or future water supplies, Denver Water could reduce bypass flows below Eleven Mile Canyon and Cheesman Reservoir, however, that would be a function of Denver Water's existing operations and not an impact of the proposed Moffat Project. Operations under the SPPP are a function of Denver Water's existing operations and reasonably independent of impacts from the proposed Moffat Project. Since the

Comment Information	Comment	Comments and Responses
	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project |		| |---|---|---| | | *Dichanthelium oligosanthes-Hypericum majus* | Medium | | Ponderosa pine old growth | *Pinus ponderosa* | **KNOWN IN PROJECT AREA** | | Upwelling/dome springs/seeps | | Low | | Thinleaf alder/mesic forb riparian shrubland | *Alnus incana*/mesic forbs shrubland | **KNOWN IN PROJECT AREA** | | Foothills riparian shrubland | *Betula occidentalis/Maianthemum stellatum* or other forbs | **KNOWN IN PROJECT AREA** | | Fens | Habitat for a number of USFS Sensitive and local concern plant species | **KNOWN IN PROJECT AREA** (Williams Fork) | **Table G-5: Other Special Status Species Occurrence in the River Segments** This table is missing Special Status Species that may occur in or adjacent to the river segments. Missing species include boreal toad, a USFS Sensitive and MIS amphibian species. Missing species also include a number of Special Status plants that inhabit riparian areas, wetlands, and/or fens, all of which occur adjacent to river segments. Missing plant species include USFS Sensitive plant species park milkvetch, lesser-panicled sedge, livid sedge, silver willow, and others; and plant species of local concern including fern species, several sedge species *(Carex spp.)*, several twayblade species *(Listera spp.)*, and others. Lesser bladderwort, a USFS Sensitive plant species that inhabits montane fens, seeps, and freshwater marshes, is designated in this table as unlikely to occur in all river segments; however suitable habitat may be present in wetlands that occur along various river segments, and fens were documented at two sample sites along the Williams Fork River. **Appendix H – PACSM results for Surface Water** The difference between the proposed action, current conditions, full use, and the no action should be more clearly displayed on the Graphs provided in Appendix H. The current graphs are not useful for assessing the effects. Use symbols rather than colors throughout the document to make those graphs easier to interpret. Appendix H-6 provides daily flow changes in the mainstem and North Fork of the South Platte River. It also presents information indicating that there could be substantial maximum daily Page 64 of 68	Proposed Action increases Denver Water's firm yield, system reliability and flexibility, the frequency and magnitude of bypass flow reductions below Eleven Mile Canyon and Cheesman reservoirs, if needed, could potentially decrease. The Proposed Action would not decrease Denver Water's ability to meet the terms and conditions of the SPPP agreement in which case there would be no negative impact on South Platte River Outstandingly Remarkable Values (ORVs) due to the Project. The portion of Section 3.1.5.7, which discusses the SPPP and minimum bypass below Eleven Mile Canyon and Cheesman reservoirs was revised. ***Comment #738-102*** *(ID 3585)**:*** *Section 3.1.6, Page 3-67, Channel Dynamics: Selection of Sampling Sites: The rationale to select sampling sites based on field observations, natural quality of the site, hydraulic modeling potential, and accessibility are subjective criteria. The sampling sites selected do not represent the range of channel types in the Fraser River and Williams Fork River basins. It appears that the sampling sites were only selected if the channel was in good condition and stable within a given channel type (i.e., unstable channels were not sampled). The sampling sites selected are skewed toward Rosgen A and B channel types, which are less likely to be sensitive to morphological changes from existing and proposed flow alterations. Because more sensitive reaches (i.e., pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. For example, 48 percent of the St. Louis Creek drainage consists of a Rosgen C channel type (response reach) and yet the sampling site selected was in a Rosgen B channel type (transport reach). Reach morphology and sediment dynamics are closely linked to position within the watershed and significant longitudinal*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project flow reductions and increases. The effects of these significant daily flow reductions and increases need to be addressed, particularly the effects on channel and bank stability, fisheries, wetlands, riparian and wildlife habitats. **Appendix K (Preliminary Section 404(b) (1) Guidelines Compliance.** After reviewing the DEIS, the USFS feels that the proposed mitigation measures are not sufficient to adequately protect public resources. As described in the Introduction (Section 1), this 404 analysis should document the potential environmental consequences associated with the project. However, this "effects" section appears to assume that the only effect the project is having on aquatic populations in streams covered by the DEIS is a reduction or change in habitat due to increased water withdrawal. Although increased diversion volumes are a concern to the USFS, this limited description of effects is inaccurate. USFS personnel have identified many other impacts of the Project on fish in Westside streams. Some of these effects have already been documented in earlier letters to DW and FERC. Additional direct effects to fish were identified in a field review of Westside project diversions on July 21-23, 2009 and are described below. Impacts to fish in the Englewood-Ranch Collection System which should be disclosed in the DEIS and addressed via proposed mitigation measures include: • The spillway at Meadow Creek Reservoir traps and isolates fish from both the reservoir and Meadow Creek itself. Fish transported out of the reservoir during spill events were observed trapped in the pool at the end of the spillway where they are subject to poor water quality as water temperatures warm and oxygen is depleted. Ultimately most if not all of the fish trapped in the spillway pool will likely die. • The outlet from the reservoir is not designed to protect fish from injury or mortality if they are entrained out of the reservoir. It is hard to imagine how any fish thus entrained could survive to reach Meadow Creek after they are run through the outlet. • The DW Meadow Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. • The DW Hamilton Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cutthroat trout have been documented upstream of this diversion. • The Cabin Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cabin Creek has been identified by the USFS as a High Priority recovery stream for Colorado River Cutthroat. Project effects for other streams on National Forest System (NFS) lands in the Frazier River system are not adequately analyzed, including Vasquez Creek, St. Louis Creek and the Frazier River itself. • At the main Frazier River Diversion, a considerable number of brook trout were observed entrapped in an isolated off-channel pool below the instream flow release facility. At least 4 mortalities were observed at the time with more expected to occur with reductions in water quantity and quality at the site. • The Vasquez Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cutthroat trout are present in the upper watershed and thus subject to entrainment in the canal. • The outlet of the Vasquez tunnel contains significant spoil piles made from tunnel debris. The unsurfaced road to the site is in poor condition and is eroding. The spoil pile under Page 65 of 68	*variability in the response to an upstream disturbance can occur along a single stream. Additionally, the nature of channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions such that similar changes in inputs can produce different channel adjustments in different reaches. Selecting only one sampling site on a limited number of diversion sites does not reflect the range of channel responses that may occur along a channel. Extrapolating channel responses from a single sampling site to other locations along the channel or other channels is not an acceptable practice. At a minimum, multiple sampling sites should have been selected for each channel type along the focus river segment to better understand the range of existing conditions and potential responses to the proposed action. Sampling site locations should have been determined randomly within a given channel type to minimize operator bias.* **Response #738-102:** Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. Historic photographs were also evaluated to provide additional insight to past and current stream conditions. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project the road is rock with no topsoil and has not been revegetated. The sideslopes down to the stream were over-steepened and eroding. The spoil pile constrains Vasquez Creek and the stream flows into the toe of the waste dump causing active erosion of the sideslope above into the stream. • The St. Louis Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. St. Louis Creek upstream of the diversion site is a high priority watershed for cutthroat reintroduction due to the large amount of high quality habitat upstream. **Appendix M – DW's Proposed Mitigation Plan for the Moffat Collection System Project** This Appendix begins, "This Mitigation Plan is DW's proposal to provide compensatory mitigation for unavoidable adverse effects associated with the Proposed Action for the Moffat Project." The mitigation proposed for riparian vegetation would help to compensate for only a portion of riparian areas proposed for inundation, and would not address riparian habitat to be lost in the various drainages. For wildlife and SSS, the mitigations proposed appear to apply primarily to complying with the Endangered Species Act and the Migratory Bird Treaty Act. There is no mitigation proposed for special status plant populations that would be inundated, or for loss of critical elk winter range. The USFS recommends additional mitigation measures in several resource areas. Refer to comments under the various Mitigation and Monitoring sections of Chapter 4 for specifics. DW's proposed mitigations are inadequate to address the Project's impacts to fish populations and fish habitat. As described earlier in this submittal, USFS personnel have documented numerous instances where project facilities and operations have directly impacted fishery resources (including operations that result in direct mortality to fish) on NFS lands. DW has proposed no mitigation measures whatsoever to resolve these impacts. The DEIS identifies several westslope streams affected by DW's diversion of water to the Moffat Collection system as containing pure or hybridized populations of Colorado River cutthroat. However, rather than address the impact of the project through screening or other actions that would protect individuals within these existing populations, DW's proposed mitigation measure is to cooperate with CDOW to establish several new populations of Colorado River Cutthroat in Wilderness Areas unaffected by the project. While the USFS supports these type of efforts to reintroduce native cutthroat trout into protected habitat, the agency feels that the first priority actions should be to protect existing populations and mitigating project effects in an "on-site, in-kind" manner consistent with CEQ Mitigation Priorities:, found at 40 CFR Party 1500-1508. The DEIS indicates that there will be impacts to aquatic habitat and aquatic biota in the North Fork of the South Platte. In Appendix M there is some discussion of mitigation for these impacts. The Pike National Forest would like to be involved in development of a mitigation plan that addresses these impacts. Any mitigation plan should address concerns identified by the CDOW that could potentially impact recreational fishing on the North Fork and also the South Platte. Although mitigation is mentioned only for the North Fork, we feel that any changes in release patterns from Eleven Mile and Cheesman reservoirs may also require mitigation and protection of fisheries habitat investments made in Eleven Mile Canyon. In the PSICC Forest Plan, we have an anti-degradation policy that prevents projects that lead to resource degradation. Page 66 of 68	provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-30*** *(ID 3578)**:*** *The DEIS does not include a sampling site on Vasquez Creek downstream of Gumlick Tunnel even though flows are projected to increase by 20% through the tunnel from water diverted from the Williams Fork drainage. The increase in flows could potentially affect channel stability, channel morphology, and aquatic habitat along Vasquez Creek between the Gumlick Tunnel outflow and the DW Board diversion structure.* **Response #738-30:** Please see the response to Comment ID 3848. ***Comment #738-61*** *(ID 3579)**:*** *Hydraulic Capacity and Operation of Diversion Structures: The dimensions, hydraulic capacity, and operational history of each diversion structure need to be provided in order to evaluate the impacts of the existing diversion structures on fluvial processes and channel morphology from the 1) natural flow and sediment regime and 2) proposed changes to the operation of each diversion structure. For example, the annual and maximum annual volume of water diverted by the diversion structure in a given year and the annual and annual maximum peak discharge diverted by the diversion structure should all be shown as well as the maximum discharge capacity of the diversion structure. Discuss how the diversion structure discharge capacity compares to the flow remaining in the channel. Does the diversion structure span the channel? Explain how the diversion structure affects the transport of sediment to the downstream channel.* **Response #738-61:** With the Moffat Project on-line Denver Water would divert additional water in average and wet years.

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project The mitigation section, Appendix M, does not adequately demonstrate that natural stream restoration will occur. "To compensate for reduced flows and subsequent potential decrease in aquatic habitat in the North Fork, DW will create aquatic habitat improvements on the North Fork. These improvements will be developed in coordination with the ACOE, CDOW, USFS, and landowners. For example, pool habitat could be created by a combination of boulder placement and grade controls. DW will submit a detailed aquatic habitat improvement plan as part of the final Mitigation Plan." The USFS needs to see a mitigation design that incorporates natural restoration techniques. **Comments to Supporting Documentation and References** *Existing Channel conditions report* Figure 6, Page 12: The 1986 general equation contradicts the sediment supply curves in some of the graphs in appendix H. The 1986 general equation expresses a sediment discharge/rating curve rather than a supply equation because it is related to flow. Sediment is supplied from uplands, especially in disturbed watersheds as well as from in-channel sources. The 1986 general equation is representative of phase I bedload transport only and while it clearly over-predicts sediment transport at flows less than approximately 160 cfs (because it includes suspended load as well as bedload supposedly), it misses the second part of the bedload function (phase II) and substantially underestimates the sediment transport at higher flows (>160 cfs). In the most extreme case of under-prediction, the general equation compared to measurements at site 4 under-predicts daily sediment discharge by a factor of 2.5 (predicts 20 tons/day, actual is 50 tons per day). What is wrong with the general "supply" equation? Does this "supply" equation account for sediment stored in channel backwaters, on the floodplain and point bars or from episodic mass wasting or basin development causing accelerated upland erosion? If "gravel to cobble sized sediments typically act as an immobile layer that moderates the supply of bed load sediments until higher flows break up the armor layer and make sediments available for transport as bed load", yet the supply equation discounts this portion of the bedload function, how could bedload transport be supply limited? Why is there no discussion of in-channel sediment supply at higher flows where the streambed is mobilized? Provide data to support the assumption that sediment discharge from a stream is an appropriate surrogate for sediment supply to a stream from the watershed. Bedload is energy limited, especially for phase II transport and the sediment supply is greater than the transport capacity. Further diversions lead to aggradations and a reduction in cross-sectional area and when extreme high flows escape diversion and enter a shrunken channel, the channel is blown out and the function is lost. Flood stage is increased by jamming high flows into a channel with decreased water conveyance capacity. Cooper, D. J., L. H. MacDonald, S. K. Wenger, S. Woods. 1998. Hydrologic restoration of a fen in Rocky Mt. National Park, Colorado. Wetlands 18: 335-345). These surveys were done specifically for the Recreation Management Plan and powerline relocation and did not include all Page 67 of 68	The operations of the diversion structures including the general timing and maximum rates of diversion are not anticipated to change. The impacts of Denver Water's Diversion structures on channel morphology and fluvial processes was based on an analysis of daily flow data for the entire study period at each representative reach. Information on the average, wet and dry annual volumes of water diverted by each diversion structure and the percentage of flow diverted was added to FEIS Appendix H. Information on the flow remaining in the channel for average, wet and dry years is provided in FEIS Appendix H-3. Additional sediment sampling and modeling sites were added immediately below diversion locations to assess stream morphology responses at these areas. Existing conditions were evaluated and documented at other diversion points to assess stream conditions. Historic data were evaluated at diversion points to define past stream responses. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-31*** *(ID 3580)**:*** *Section 3.1.6, Table 3.1-18 and Table 3.1-19: See Comment A (Page 3-67) above. Site selection seems biased and not relevant to addressing how potential flow alterations may affect fluvial processes and channel morphology for the range of channel types in the Fraser River and Williams Fork River basins.* **Response #738-31:** Please see the response to Comment ID 3848. ***Comment #738-32*** *(ID 3581)**:*** *Section 3.1.6, Table 3.1-18: It is not clear how this*

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	Enclosure 2. USFS Specific Comments; US Army Corps of Engineers; Draft Environmental Impact Statement, Moffat Collection System Project areas of anticipated disturbance for the proposed reservoir enlargement, as indicated under FERC License Article 410, heading B. Survey Methodology Used which states "Specific areas around Gross Reservoir were surveyed during June, July, and August 2001.... No attempt to survey the entire reservoir was made." Page 68 of 68	*table relates to this analysis. The DEIS claims that "channels classified the same are assumed to have similar hydraulic, sediment transport, sediment supply, lateral migration, and vegetative encroachment characteristics." If channel type is important, perhaps a more process-based approach would have been more appropriate. Rosgen channel-type classifications have no bearing on HEC-RAS modeling nor do they provide any substantial or valuable information to the analysis.* **Response #738-32:** Please see the response to Comment ID 3848. ***Comment #738-108*** *(ID 3606)**:*** *Section 3.1.6, Table 3.1-19: This table provides some values that are not within the accepted range of variability for the stream channel types presented. As an example, sinuosity is extremely low for all sampling sites, but it is especially low for C-type channels. The sinuosity values shown would indicate that there is a problem with the system. In addition, the DEIS should show the entrenchment and flood-prone width values of the sample sites.* **Response #738-108:** Values listed for sinuosity are calculated for the limited reach length where the detailed survey and sediment sampling was completed and therefore should not be compared with typical sinuosity values based on extended stream segments. Entrenchment ratios and flood prone widths have been added in the FEIS Section 3.1.6. ***Comment #738-109*** *(ID 3607)**:*** *Section 3.1.6.1, pages 3-73 and 3-74, Fraser River: FR4- Ranch Creek: The DEIS states that this site is located just below the confluence of the "North Fork South Platte River of Ranch Creek", which is incorrect as this is not the Platte River drainage.*

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	Enclosure 3 **US Forest Service Comments** **Moffat Collection System Project** **Denver Water Draft License Amendment Application** **Gross Reservoir Hydroelectric Project, P-2035** **March 2010** Enclosed are the comments of the US Forest Service (USFS) for the proposed Moffat Collection System Project (Project). Denver Water (DW), presented their analysis in a Draft License Amendment Application (DLAA), published in October 2009. **Draft License Amendment Application (DLAA)** **Exhibit E** *Page E-1, first paragraph, next-to-last sentence*: The DLAA states: "Therefore, Denver Water (DW) believes that the impact analyses for the Proposed Action of the DEIS (the Alternative Proposed Project of this license amendment application) reasonably represent impacts for both the Proposed Project and the Alternative Proposed Project." There are multiple populations of rare plants around Gross Reservoir, occurring along South Boulder Creek, Winiger Gulch, Forsythe Canyon, and unnamed tributaries flowing into Gross Reservoir. The extent of inundation, which is somewhat greater under the Proposed Project than under the Alternative Proposed Project analyzed in the DEIS, determines the rare plant occurrences that will be inundated and therefore permanently destroyed. DW must acknowledge and analyze this difference between the Proposed Project and the Alternative Proposed Project (collectively, "Project"). The DLAA does not reasonably represent the impacts to Proposed, Threatened, Endangered, and Forest Service Sensitive plants and species of local concern plants. Based on the best available data, a loss of some taxa would result in a loss of viability on the planning unit. *Page E-9, Botanical Resources/Tree Removal:* The DLAA states: "The U.S. Forest Service (USFS) has requested Denver Water conduct a cruise design, approved by a qualified USFS cruiser…" This statement leads the reader to believe that DW is simply agreeing to a USFS request. In fact, a timber cruise of this type is a requirement for any project planning to remove timber belonging to the people of the United States. Removal of timber from National Forest System (NFS) land including that covered by this proposed project will adhere to USFS policy and direction regarding valuation and payment for said timber. *Page E-10, Acreage Compensation*: The DLAA states: "Boulder County has requested that Denver Water compensate for the loss of approximately 400 acres of shoreline, tributary and bank habitat that would result from expansion of Gross Reservoir. Denver Water anticipates that the lost riparian resources would reestablish over time along the shoreline of an expanded Gross Reservoir." Proactively establishing riparian vegetation adjacent to an expanded reservoir may	**Response #738-109:** The text has been corrected in FEIS Section 3.3.5.1. The sentence now reads: "The fourth site, FR4, is located on Ranch Creek just below the confluence of the North Fork of Ranch Creek." ***Comment #738-110*** *(ID 3608)**:*** *Section 3.1.6.5, South Boulder Creek above Gross Reservoir, page 3-78: "Based on visual observations of the reach and predominate bed material, SBC1C is characteristic of a Rosgen B3 to B2 stream type." South Boulder Creek is more likely to be an F2 or F3 channel, with a high width to depth ratio and incised channel where entrenchment has created a loss of access to the floodplain. See Rosgen, D. "Applied River Morphology", 1996, pages 5-6 and 5-150 through 153.* **Response #738-110:** The classification of SBC1C was reevaluated as part of the calculation of entrenchment ratios and revised in FEIS Section 3.3.5.5 as a Rosgen F3 to F2 stream type. ***Comment #738-111*** *(ID 3609)**:*** *Section 3.2.5, page 3-86 and 3-87: The water budget described for the Fraser River basin is incorrect and needs to be reworked for the following reasons. The estimate of evapotranspiration provided by Apodaca and Bails in 1999 is extremely high compared to actual current ET values in 2010 due to widespread lodgepole pine mortality and was calculated as the budget residual. The consumptive use value provided, which is 15 years old, is an underestimate as Fraser basin development has accelerated greatly in recent times. There are inconsistencies between the referenced materials and information presented in DEIS: Why would DW personnel tell Apodaca and Bails in 1995 that the value for surface water diverted into the Fraser basin*

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	Enclosure 3. US Forest Service Comments; Denver Water Draft License Amendment Application; Gross Reservoir Project, P- 2035 address compensating for shoreline and bank habitat currently occurring adjacent to Gross Reservoir. However, expansion of the Project will also inundate riparian resources upstream along South Boulder Creek and multiple tributaries flowing into the reservoir. Compensating for these lost resources would require restoration and/or acquisition of comparable areas with similar ecological values. Refer to the additional mitigation recommended for DEIS Section 4.6.7.1. The Project will flood riparian rare plant communities and/or rare plant taxa that will not be recovered. The USFS supports transplantation and other salvage operations, but these mitigation actions would not entirely offset the loss. *Page E-13, second paragraph:* The DLAA states: "Mitigation of potential adverse impacts to cultural resources will be determined by the SHPO and the Corps during Section 106 consultation. Treatment plans will be developed in accordance with the terms of the Programmatic Agreement." The USFS, as the land management agency, will be involved in the development of mitigation for adverse effects to any historic property located on NFS Land. "Possible treatment would be documentation of the historic resource per the Colorado SHPO's standards for site documentation, including historic resource documentation of Gross Dam and the Resumption Flume." Although this may be one of the required mitigations, it may not be the only mitigation required. (a) "A schedule for implementing mitigation proposals. Historic resource documentation of Gross Dam and the Resumption Flume would occur prior to construction." Although photo-documentation is likely to be one of the required mitigations, it is premature to say that it is the only mitigation, as the stakeholders have not finalized either the Programmatic Agreement or subsequent consultation on mitigation. **Attachment E-1, Tree Removal Plan - Supplement** *Roads:* The Tree Removal Plan and Supplement to the Tree Removal Plan mention the reconstruction of Forest Service Road (FSR) 359 and use of temporary roads, but there is no discussion of reconstruction methods or locations. Likewise, there is no discussion of the use and management of the temporary roads. DEIS Figure 2-3 shows that reconstruction of FSR 359 will occur outside the Study Area for Gross Reservoir. The Environmental Report (Exhibit E) does not mention road reconstruction or construction and use of temporary roads. This indicates there was no environmental analysis or consideration of management of roads on NFS land. Road proliferation and density on NFS land is a concern on the Boulder Ranger District. A likely requirement for this Project would be a "Road Management Plan" describing the location and management of all roads. The plan should include specific details on construction and reconstruction, status of the road (temporary/permanent, administrative/public use, etc.), and closure/rehabilitation methods. The plan should include all Project-related roads on NFS land whether inside or outside the current Federal Energy Regulatory Commission (FERC) project boundary. Road management within the FERC project boundary should be coordinated with and compatible with USFS road management in the vicinity. *Tree Removal:* DW proposes to remove all trees and their associated debris to reduce future problems with floating debris. The Project proposes pool expansion clearing, considering several logging methods, to an elevation of 7410 feet, which is 10 feet above the proposed new Page 2 of 4	*was only 300 AF when the DEIS shows a modeled (PACSM) value of 8700 AF for a similar period? A similar question is relevant for surface water diverted out of the Fraser basin. DW told the USGS in 1995 that the Moffat tunnel diverted 23,500 AF annually but table 3.2-1 shows a modeled value of 60,900 AF for the similar period. For example, page 3-17 mentions that the average annual Moffat tunnel diversions between 1975 and 2005 were 55,800 AF. Which of these three values is correct? This matters because the "groundwater out" value is unknown and calculated as the residual of the budget. It also appears as if the "surface water out" values are highly variable with Apodaca and Bails stating the value is 135,500 AF and the DEIS claiming only 64,500 AF. Explain why the DEIS water budget for the Fraser (table 3.2-1) mixes and matches data from the same report for the same time period with modeled PACSM output. Explain why there was a need to model existing surface-water diversion values to develop a hydro budget. Show how much water DW is actually taking under existing conditions. It is difficult to draw conclusions from the data presented.* **Response #738-111:** The comment notes several apparent inconsistencies between the values in the water budget described in DEIS Section 3.2.5. It appears that the confusion arises because of the different time frames used for the modeled values compared to the values estimated in the references cited. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. However, as described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic

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	Enclosure 3. US Forest Service Comments; Denver Water Draft License Amendment Application; Gross Reservoir Project, P- 2035 pool elevation. All residue from the pool expansion clearing needs to be disposed; methods that have been considered include the use of Air Curtain Destructors, whole tree grinding and haul to landfill, and whole tree removal to landfill If DW proposes to use fire (in any form) on NFS land, the USFS will need to approve a burn plan. DW can obtain requirements for an acceptable burn plan from the Boulder Ranger District Fire Management Officer. State of Colorado air quality permits may also be necessary. *Quarry on NFS land:* The quarry on NFS land will require a Mineral Material permit issued by the USFS. Material removed will require an appraisal and payment to the United States. *Page 7 of 8:* Under Winiger Ridge (West) Haul Route the DLAA states: "CR 97E has a private land gate on it so it is not recommended for access to the old Winiger Gulch road or stands. A new temporary road will likely need to be constructed from the old Winiger Gulch road to the Winiger Ridge road (FR 359)." The possibility of using the existing road CR 97E, which may be preferable from a resource impact standpoint, is simply dismissed, with no mention of whether any communication has occurred with the private landowner and assumes that a new road will be built. The Forest Service has concerns about the possible location of any new temporary roads in this area. Depending on the final route of the proposed new temporary road, the road would either bisect or be adjacent to an area designated for old growth development under the Arapahoe-Roosevelt NF Forest Plan. In addition, the topography in this area is very steep and may not support a road, even in the short term. **Attachment E-2, Gross Reservoir Recreation Relocation Plan** Recreation-related action alternatives denote a simple (in-kind) relocation of existing facilities with very little applicable analysis. For example, the Gross Reservoir Recreation Relocation Plan dated 2008, shows that all south shore recreation sites will be relocated and recreation use consolidated. This analysis is deficient because it does not provide information on Project effects for recreation-related concerns such as pedestrian safety, user conflict associated with concentrated use, sustainability of a positive recreation experience, and potential unanticipated operational issues. DW did not consider mitigations for these and other potential Project effects. Inundation and recreation site relocation will result in changes in use dynamics, extend cumulative affects well beyond the FERC boundary (Winiger Ridge and S. Boulder Creek), and prompt a number of changes to law enforcement and operational plans. The DLAA does not disclose affects related to road relocation, duration of temporary closures, duration of water releases, reservoir-level fluctuations, concentration of recreation use, lack of replacement of existing day use, and overnight camping opportunities lost to inundation (Winiger Ridge). The DLAA does not adequately analyze a number of other actions that will result in a shift in use dynamics, including: • Recreation that occurs below High Water Mark during drawdown periods. Future management needs to consider the greater HWM fluctuation and related safety and fishing access; • Options for either recreation-site development, or mitigation measures necessary to address changing demographics and recreation demand along the Front-Range; Page 3 of 4	systems in each of the affected watersheds during these times. Moreover, year-to-year climatic variations cause large changes in the hydrology of the Fraser River Basin. The simple annual hydrologic budget presented in the DEIS is shown for an average year; the inputs and outputs each total approximately 400,600 AF/yr. In DEIS Table 3.2-1, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999). The water diversions in and out of the watershed were updated to reflect more recent Denver Water values. Mostly, the comment reflects a misunderstanding of the reason for including the simple water budget table and graphic in the DEIS. Those were intended to simply illustrate the major hydrologic components in watersheds to help the DEIS reader generally understand how those factors relate to one another. They were not intended to provide a basis for quantitative analysis of the Project impacts. Rather, the PACSM and the HEC-RAS model results, actual measurements, and professional judgment provide the primary basis for hydrologic impacts assessment. To avoid the type of confusion expressed in this comment regarding the hydrologic budget values, the water budget table (Table 3.2-1) and graphic were removed from the FEIS. ***Comment #738-105*** *(ID 3602)**:*** *Section 3.5.0, page 3-105, Vegetation Types: The following summary of vegetation surveys is provided: "Vegetation in the Project Area was surveyed and mapped in late August and September of 2005 and June of 2006. In areas of potential permanent disturbance, such as the reservoir sites and other aboveground facilities, the sites were traversed on foot to identify plant community associations and dominant species. Areas of temporary disturbance, such as conveyance facilities, were primarily*

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	Enclosure 3. US Forest Service Comments; Denver Water Draft License Amendment Application; Gross Reservoir Project, P- 2035 • Alteration of kayaking and fishing opportunities that may result from changes in water release duration; • Multiple year use of temporary roads and closure areas that may result in inappropriate access or use during the implementation period; • Location of the Osprey Trailhead directly in the spillway zone (aesthetics and safety); Location of staging and stockpile area needed during construction that will restrict vegetation re-generation. Page 4 of 4	*observed by a vehicle reconnaissance. Areas of special interest identified during the vehicle reconnaissance, such as riparian communities, were also surveyed by foot." No mention is made of surveys for USFS Sensitive or rare/local concern plants as part of vegetation surveys, and no previous surveys are mentioned, such as the plant surveys done around Gross Reservoir for the DW 2001 FERC relicense. These surveys were done specifically for the Recreation Management Plan and powerline relocation and did not include all areas of anticipated disturbance for the proposed reservoir enlargement, as indicated under FERC License Article 410, heading B. Survey Methodology Used which states "Specific areas around Gross Reservoir were surveyed during June, July, and August 2001. No attempt to survey the entire reservoir was made." The USFS submitted a Study Request for a Project Area Sensitive and Rare Plant Survey that included specific requirements for determining appropriate species lists (see Appendix G comments), described the need for additional surveys, and included specification guidelines for survey reports. None of this information is included or referenced in the DEIS, and there are no additional available reports or other documentation indicating that the requested surveys occurred.* **Response #738-105:** Botanical surveys were conducted by the Corps during the summer 2010 after coordination with the USFS ARNF botanist regarding the target species list, scope, and qualifications of the surveyors. The botanical surveys included all of the areas that would be affected by reservoir construction, inundation, and shoreline clearing. The results are summarized in FEIS Sections 3.7.1 and 5.7.1 and are described in more detail in a Biological Technical Report (FEIS Appendix G). ***Comment #738-29*** *(ID 3603)**:*** *Section 3.5.0, page 3-106, Noxious Weeds: Table*

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	Enclosure 4 **US Forest Service Comments on FERC Study Request Determinations** **Moffat Collection System Project** **Denver Water Draft License Amendment Application** **Gross Hydroelectric Project, P-2035** **March 2010** Enclosed are the specific comments of the US Forest Service in regard to FERC's response to Forest Service requested studies for the proposed Moffat Collection System Project (Project). **Study 1: Cultural Resource Inventory – This study request is for a complete pedestrian inventory of the area of potential effect for this project** The Forest Service requested this study for compliance with the National Historic Preservation Act, as amended (NHPA), Archaeological Resources Protection Act (ARPA) and Native American Graves Protection and Repatriation Act (NAGPRA). FERC Response: A draft of the Programmatic Agreement (PA), included in the Corps' DEIS, stipulates measures to be taken to protect significant cultural resources, including avoidance, protection measures, and data recovery. Forest Service Response: As the land managing agency, the Forest Service will be involved in the development of mitigation for adverse effects to any historic property located on National Forest System land. It is premature to say the mitigations in the draft PA are the only mitigation as the PA and subsequent consultation on mitigation has not yet been finalized. **Study 2: Provide Physical Description of Project Operation Facilities** The Forest Service requested this study in an attempt to better understand the operations and existing infrastructure of the Moffat Collection System. This included: physical descriptions (height of structures, diversion capacity, the presence of fish passage mitigation, etc), locations of all diversion structures (including tunnels, intakes, canals, pipelines, etc), and a flow diagram of all potential routes of water through the Moffat Collection System. FERC Response: "In the Corps' DEIS and its appendices, we found detailed information describing the Moffat Collection System's facilities, operations, and the streams it utilizes. We believe the information in the EIS should satisfy the Forest Service's needs"	*3.5-1: Noxious Weeds Observed or Expected to be Present in the Project Area: this table does not include weeds known to occur in Grand County that are associated with DW's System at tunnel portals, along access roads and pipelines, and at large facilities. Species documented to occur include oxeye daisy and Canada thistle. Orange hawkweed that occurs along the upper Fraser River may be associated with DW's collection system and/or may be conveyed by the system. See related comments under Section 4.5.1.1.* **Response #738-29:** A discussion of the potential for water-borne dispersal of noxious weeds to Gross Reservoir from the West Slope has been added to FEIS Section 5.7.1. Small occurrences of ox-eye daisy were observed in 2010 along the edges of South Boulder Creek above the reservoir, apparently established from water-borne seed. The proposed Project would not increase the chance for water-borne dispersal of noxious weed seeds because water is presently diverted year round and no new water sources would be used. Additionally, as part of Denver Water's existing FERC hydropower license for Gross Reservoir (Article 406 – conditions 107 and 108), Denver Water is required to submit an annual monitoring report for noxious plants. This report includes a list of the priority species and plans to eradicate these species from the FERC project area (which includes lands owned by the USFS and Denver Water). These weed control efforts involve the cooperation of the USFS and Denver Water, and are based on a list of noxious weeds developed by the USFS and the Colorado Department of Agriculture. ***Comment #738-106*** *(ID 3604)**:*** *Section 3.5.1.1, beginning on page 3-107, Gross*

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	Forest Service Response:
	• The Forest Service disagrees with FERC's conclusion that sufficient information exists in the DEIS to satisfy the Forest Service's needs.
	• The FS requested the above information in order to conduct independent analyses regarding the project footprint and future maintenance of the facilities and necessary project infrastructure.
	• The FS will also use the requested information to assess potential effects to aquatic resources by integrating stream specific hydrology with site-specific diversion capacity.
	• A map in the DEIS does display the location of diversions, but physical descriptions and flow diagrams were not provided. Listed above is what we specifically asked for in that study, and those items were not adequately described in the Corps' DEIS; therefore, FS needs were not satisfied.
	
	Study 3: Provide site-specific flow-habitat relationships for streams containing cutthroat trout through the conduct of PHABSIM studies
	
	The Forest Service requested PHABSIM studies in order to quantify the flow-habitat relationships over a range of discharges to assess the effects of project operations on resident trout habitat in the affected stream reaches. The objective of this study is to develop site specific flow-habitat relationships for each affected stream segment for resident trout. The Forest Service was primarily interested in reviewing flow-habitat relationships on the 11 streams that contain resident cutthroat trout where they occupy NFS lands.
	
	FERC Response: We found that the Corps' DEIS references and makes use of IFIM data and/or fish population data from studies of almost all tributary streams identified by the Forest Service… The information and analysis in the Corps' DEIS should satisfy most or all of the Forest Service's needs.
	
	Forest Service Response:
	• The Corps' DEIS included only one out of the 11 streams that the FS requested PHABSIM analyses. Contrary to FERC's conclusion, the DEIS clearly states that their document *does not* cover all of the diverted systems: on page 3-213 in the DEIS, the Corps' says, "Habitat simulations are not available for most tributaries." On page 4-309 in the DEIS, the Corps' states "In the Fraser River and Williams Fork basins, there are tributaries with Denver Water diversions that were included in the Project Area. IFIM data were not available for most of these tributaries but R2 Cross data was available for a few. However, no hydrologic data were available for most of these tributaries."
	  o For clarification, IFIM is a process and not a model. PHABSIM is the model that is used to assess the relationship between flow and aquatic habitat which in this case is fish habitat.
	  o A Habitat Time Series analysis is an essential part of any PHABSIM analysis. This type of analysis integrates site specific hydrology with the flow-habitat relationship for targeted species and life stages. The DEIS clearly notes that there
	
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		Reservoir: Additional plant communities need to be discussed in this section. Refer to Table 5: Plant Communities of Local Concern for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP) in Appendix G comments for additional plant communities, including ponderosa pine old growth, known to occur in the project area, and additional communities for which surveys should be done and effects analysis conducted depending on survey results. The discussion of Potential Conservation Areas (PCA) could have occurred in this section or under Wildlife, or both. Since some of the three PCA's are designated primarily to protect plants, it would be helpful to reference the PCA discussions in this section, by page number(s) or section number(s) where they occur under Wildlife. Although Article 410: Plan to Protect Rare and Sensitive Plants is cited in this section, however information from the Plan regarding occurrence and expected inundation of USFS Sensitive and rare/local concern plant populations is not mentioned in this or other applicable sections.
		
		Response #738-106:
		Information on the additional plant communities of local concern has been added to the FEIS Section 3.7. Discussions of Potential Conservation Areas (PCAs) were provided in both the vegetation and wildlife sections in the DEIS, including DEIS Section 3.5.1.1 Gross Reservoir subheading Riparian, and 3.7.1.1 Subheading Sensitive Areas. Cross citations have been added to the FEIS, and the discussion of PCAs has been updated to reflect current CNHP designations. Sensitive species surveys were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in the Special Status Species sections of the FEIS

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. is insufficient information to conduct such an analysis given the absence of site specific hydrologic data. It is unclear how FERC or the Corps can determine the effects of project diversions for each alternative in the DEIS on the affected streams without either PHABSIM or hydrology data. o Contrary to FERCs conclusion that adequate information exists, PHABSIM data were NOT available for 10 of the 11 of the streams requested, thus, the Forest Service's information needs are not yet satisfied. The DEIS also inappropriately bases its assessment on PHABSIM results for one stream and the assessment for that one stream does not address cutthroat trout habitat needs which is the fish species of most interest to the USFS. o The objective of the requested study was to determine the effects, if any, of project operations on native cutthroat trout habitat in each affected stream segment. This objective was not met in the Corps' DEIS since most of the streams the Forest Service was interested in were excluded from the analysis. The fish population data that was included in the DEIS was not requested in this study plan; therefore, that information does not meet the intent of the study request. **Study 4: Perform R2 Cross Instream Flow Study for Non-cutthroat trout Streams** The Forest Service proposed this study to quantify base-flow needs in selected project-affected streams of low fisheries value in the Fraser River basin. The information is needed to validate existing or develop new information for flow needs in the listed streams. FERC Response: We found that the Corps' DEIS references R2 Cross studies performed on some of the streams identified by the Forest Service, which would partially address this study request. Forest Service Response: • Similar to comments stated earlier for the PHABSIM. FERC reached its conclusion based on information available for 25% of affected streams. • R2 Cross data is alluded to in the Corps' DEIS on pages 3-222,233,239. R2Cross data was only provided in the Bobtail Creek discussion in the Williams Fork River basin (page 4-324). Apparently, 8 out of 31 streams in the Fraser River Basin have R2Cross data, but those data are not provided in the DEIS nor is the information available for the streams included in the FS request. Without the site specific R2 Cross data, the Forest Service cannot conduct an independent assessment of effects of project diversions on downstream resources. Therefore, Forest Service needs in regard to the requested study were not satisfied. **Study 5: Develop Unregulated and Regulated Hydrology for Project-Affected Streams** The Forest Service proposed this study to quantify the effects of the Moffat Collection System (project) operations on the hydrology of affected streams by quantifying unregulated, existing Page 3 of 8	(Sections 3.7.1 and 5.7.1), and are described in more detail in the Special Status Species Technical Report (Appendix G). ***Comment #738-107*** *(ID 3605)**:*** *Section 3.6.0, page 3-117 and 3-120 – 3-121, Overview and/or Wetlands: Given the importance of fens and the documented occurrence of fens at the two Williams Fork sample sites, discussion of fens in either or both of these sections is warranted. Discussion could include a definition of fens and a description of their conservation and legal importance. Discussion should also include any surveys for fens that have occurred in the project area, whether conducted specifically for the proposed project or for other purposes, and results of such surveys. If no project-specific surveys were done, surveys should be conducted for the project area, including all areas with the potential to be impacted by water depletions. Fens are included Table 5: Plant Communities of Local Concern for the ARP under Appendix G comments.* **Response #738-107:** A definition and description of the conservation importance and legal status of fens has been added to the FEIS in Section 3.8.0. A reconnaissance survey of fens was conducted in along portions of the Fraser River and its tributaries and portions of the Upper Williams Fork in September of 2010, and the results are provided in the FEIS Section 5.8.1.2. ***Comment #738-27*** *(ID 3598)**:*** *Section 3.6.0, page 3-117, Overview and/or Wetlands: Table 3.6-1, Summary of Riparian Areas and Wetlands, page 3-120; AND Section 3.6.1.1, beginning on page 3-122: Wetland and riparian habitat mapping for reservoirs, including Gross Reservoir, is described as follows in the fourth paragraph of Section 3.6.0: "These facilities were*

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. and proposed flow regimes downstream of diversion points. The objective of this study is to develop average daily flow statistics for each diverted or augmented stream that supplies water to Gross Reservoir in order to be able to adequately assess project effects to NFS streams and habitat. FERC Response: We found that the Corps' DEIS extensively addresses the hydrology of the existing environment and the proposed enlargement of Denver Water's Moffat Collection System. Forest Service Response: • *Study each of the 35 diverted streams on the west slope:* The DEIS did not model each diverted stream individually but, instead combined several of the smaller streams. Effects of differences: Cannot determine effects on hydrology of individual streams when model combined streams. • *Conditions in each stream for unregulated, existing and proposed conditions:* The USFS cannot locate any data in the DEIS describing unregulated conditions, and we are not certain what the data describing current conditions actually refers to as this is a moving target throughout the document. Proposed conditions are represented by no action, full use and proposed action. Effects of differences: Data on unregulated streamflow is critical in determining cumulative effects to forest streams. We need an estimate of mean daily discharge at diversion sites for unregulated conditions. Every hydrograph and table in the DEIS could include curves or data representing the native flow condition. Displaying such information puts the proposed, incremental effects in context and the absolute effect would easily be determined. If this approach were used in the DEIS, a reader could clearly see the differences between alternatives instead of struggling to understand the baseline, then the incremental impacts of each hypothetical future situation such as full use in 2016 and 2030. • *For each of the three streamflow conditions (unregulated, existing and proposed), at each diverted stream, provide hydrographs and tables with data on mean daily discharge in cfs units, showing inflow, amount diverted and outflow for specific wet (1980), average (1991) and dry years(1999)based on SWE on 4/1 at Berthoud Pass SNOTEL:* The DEIS ignored the unregulated condition, combined smaller creeks which masks effects to individual streams and provided tables in appendices of current versus full use using mean annual yield. It did not evaluate the three years (or water year types) we asked for and instead used an average of the 5 wettest or driest years thru a period of record that did not match the one we used to determine representative water years. Selected representative wet, average and dry years based on estimated natural flows (created synthetic hydrographs by modeling) for the Colorado River near Kremmling gage. Hydrographs are based on mean daily flow but show an entire water year on one graphic with 8 curves displayed, rendering the graphic nearly illegible. Tables in H-1 use mean monthly instead of mean daily discharge values. Page 4 of 8	*evaluated using field studies within the proposed or representative affected areas to delineate wetlands and other waters and to map riparian woodland and shrubland communities. Because wetlands are addressed in detail for these facilities, the discussion of riparian areas covers the remaining non-wetland riparian areas." It is not clear from these statements or subsequent discussion in Section 3.6.1.1 whether 100% of wetlands and riparian areas around Gross Reservoir with potential to be inundated by the proposed project were surveyed on the ground. Riparian and wetland acres presented in Table 3.6-1 for the Gross Reservoir area appear small. Clarification is needed regarding whether 100% of wetlands and riparian areas proposed to be inundated around Gross Reservoir have been documented based on thorough field surveys and presented in Table 3.6-1.* **Response #738-27:** All of the inundation and impact areas (100%) were surveyed for wetlands and riparian areas at Gross Reservoir. ***Comment #738-41*** *(ID 3599)**:*** *Section 3.6.5.1, page 3-147, Fraser River; FR2 – Fraser River Below Tabernash, page 3-147 Third indented paragraph under "Three CNHP Plant associations…": discusses the shrubby cinquefoil/tufted hairgrass plant association that may be associated with fens. This section discusses where this plan association may be found based on Carsey et al 2003, but does not clarify where it is actually found at sample site FR2. This section also does not mention whether a fen is present at sample site FR2.* **Response #738-41:** FR2 was revisited in September of 2010. The areas mapped as the shrubby cinquefoil/tufted hairgrass

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. Effects of differences: It is of questionable validity to use the Kremmling gage on the Colorado River, some 50 miles downstream of the affected reaches, with several large tributary junctions in between (Blue, Muddy) to represent conditions in the Upper Fraser basin to try and determine the types of water years. The assumption that modeled, rather than measured, data is more reliable or accurate is backwards. The assumption that high, average or low streamflows on the Colorado near Kremmling translate to like streamflows in the upper Fraser basin needs to be validated. The period of record used to determine representative wet, average and dry years needs to be set in a longer term context to validate the representativeness of the POR Denver selected (1947-1991) compared to the POR we suggested (1979-2007). • *Using the data generated by the tables, complete an IHA analysis by generating statistics to address the 5 groups of hydrologic alteration:* We were unable to locate any information regarding IHA analysis in the DEIS. The Grand County Stream management plan used the IHA process for 10 area streams, developing detailed data for only 1 station, but statistics for the remaining 34 streams are lacking. Effects of differences: Applying this IHA process is extremely useful in identifying the portions of the natural hydrologic regime that are currently absent due to diversions and identifying means, within the current regime, of providing some of the missing flow elements that are critical to channel morphology and aquatic habitat . The IHA analysis comparing unregulated (1911-1935) to regulated hydrology (1936-2007) for the site "Fraser River at Winter Park gage" shows that "of the 33 hydrologic parameters evaluated, 18 were highly altered, 11 were moderately altered and only 4 had low alteration" (Exec. Summary, Draft Report GC Stream Management Plan). • *Then, predict channel forming (effective) discharge for all 35 diverted streams:* We located effective discharge calculations for 6 out of the 35 diverted streams in appendix H-9. No other information was provided. Effects of differences: We need this information to determine the flow regime necessary to maintain the channel capacity, aquatic habitat and substrate conditions. This information is useful for understanding how the current and proposed regimes would affect frequency and magnitude of effective discharge flows. **Study 6: Aquatic, Riparian and Wetland Habitat Loss due to Inundation** The Forest Service requested this study because the agency is concerned about important stream, riparian and wetland resources being inundated by rising reservoir waters if the proposal is approved. Page 5 of 8	plant association occur on the northeast side of the river at distances of about 30 to 300 feet away from the river, and extending outside of the study area. The shrubby cinquefoil/tufted hairgrass is an open shrubland of shrubby cinquefoil and silver sage, with mostly mesic meadow species. It has much more mountain rush than tufted hairgrass, and it might fit better in the shrubby cinquefoil/mountain rush shrubland association. It does not have wetlands hydrology or soils under current circumstances. Several soil pits were investigated at FR2 and fen soils were not found. Please note that the description of the shrubby cinquefoil/tufted hairgrass shrubland association in Carsey et al 2003 does not say that it is a fen association but that it "occurs on terraces above the stream channel and along the drier edges of isolated wetlands and rich fens." Wetlands appear to be limited at FR2, occurring mostly along the banks of the Fraser River and in a few oxbows and side channels. Relatively large emergent and shrub wetlands supported by groundwater occur outside of the study site on the edge of the valley floor along the base of the mountain slope. ***Comment #738-42*** *(ID 3600)**:*** *Section 3.7.0, page 3-169, Overview: This brief section mentions wildlife potentially present in the Project Area, and species distribution information obtained from habitat assessments. No mention is made of any surveys done for wildlife, either for the 2001 Federal Energy Regulatory Commission (FERC) relicensing, or for the Project, and no reference is made to additional reports that might contain this information. Surveys and habitat assessments were requested in the USFS Study Request for Special-Status Terrestrial Wildlife Species and Habitats. There are no additional available reports or other documentation indicating*

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. FERC Response: We found that the Corps' DEIS thoroughly addresses impacts that inundation would have on resources at Gross Reservoir, including geology, soils, vegetation, riparian areas and wetlands, wildlife, aquatic resources, special-status species, and transportation. Forest Service Response: The Forest Service proposed this study, in part, to quantify aquatic habitat loss due to reservoir inundation. Analysis in the DEIS fails to quantify this loss as specified in the study request. It is not clear from discussion in the DEIS whether 100% of wetlands and riparian areas around Gross Reservoir with potential to be inundated by the proposed project were surveyed on the ground as specified in the study request. Riparian and wetland acres presented in Table 3.6-1 for the Gross Reservoir area appear small. Clarification is needed regarding whether 100% of wetlands and riparian areas proposed to be inundated around Gross Reservoir have been documented based on thorough field surveys and presented in Table 3.6-1. **Study 7: Project Area Sensitive and Rare Plant Survey** The Forest Service requested this study to make sure that presence of rare plants and plant communities, can be determined in the most efficient manner and that such surveys are performed to adequate industry standards. FERC Response: We found that the Corps' DEIS adequately addresses potential impacts to special status plants (e.g. Ute ladies'-tresses, Colorado butterfly plant) and their habitat under a proposed enlargement of the Moffat Collection System, including the enlargement of Gross Reservoir. Forest Service Response: • "Rare plants" for this study is defined as comprising 1) plants listed or proposed for listing under the Endangered Species Act, 2) the most current Forest Service Region 2 list of Sensitive Plants, and 3) all other rare Plants of Local Concern, all three groups of which are as identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area (e.g., riparian plants potentially impacted by downstream water depletions or changes in reservoir/downstream hydrology flow rates, levels, or timing; rare plants occupying off-site borrow pits; etc.). "Rare plant communities" include those identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area. Note that these definitions do not necessarily include plants that are otherwise tracked by the Colorado Natural Heritage Program. The most current lists of rare plants and communities to survey must be derived in concert with the Forest. Table 1 (Federally Listed Species), Table 2B (Forest Service Sensitive Plants), and Table 4 (Plant Species of Local Concern) under Study 8 Comments indicate which plant species should be surveyed for and included in analysis, and probability of occurrence in the Gross Reservoir Page 6 of 8	*that the requested surveys occurred.* **Response #738-42:** The Introduction to DEIS Section 3.7.0 states: "This section discusses the wildlife potentially present in the Project Area. Information on species distribution was obtained from habitat assessments using aerial photography during 2005-2006 field visits, the National Diversity Information System (NDIS), previous studies conducted in the Project Area and reports, and literature searches." Per consultation with the USFS, information regarding wildlife and USFS Sensitive Species has been added to FEIS Section 5.10.1 based on surveys conducted by the Corps at Gross Reservoir in summer 2010. Surveys were conducted for sensitive and rare plants, northern goshawk, and northern leopard frog. A Special Status Species Technical Report has also been prepared that describes the results of surveys for these species and is included in Appendix G in the FEIS. ***Comment #738-28*** *(ID 3601)**:*** *Section 3.7.1.1, page 3-169, Gross Reservoir: Second paragraph: The third sentence mentions that insects including western spruce budworm have killed large patches of ponderosa pine on the west side of Gross Reservoir. It should be noted also that large patches of Douglas-fir, the favored host of western spruce budworm in Colorado, have also been killed in the area west of Gross Reservoir.* **Response #738-28:** Information regarding budworm has been added to the FEIS Section 3.9.1. ***Comment #738-103*** *(ID 3594)**:*** *Section 3.7.1.1, pages 3-169 and 3-170, Big Game: General comment: The Colorado Division of Wildlife*

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. area. Plant species in Tables 2B and 4, particularly species that occupy riparian areas, wetlands, or fens, should also be considered for analysis for the River Segments. No mention is made in the DEIS of surveys for Forest Service Sensitive or rare/local concern plants as part of vegetation surveys or special status species surveys, and no previous surveys are mentioned, such as the plant surveys done around Gross Reservoir for the Denver Water 2001 FERC licensing. The Forest Service provided a Study Request for a Project Area Sensitive and Rare Plant Survey that included specific requirements for determining appropriate species lists, described the need for additional surveys, and included specification guidelines for survey reports. None of this information is included or referenced in the DEIS, and there are no additional available reports or other documentation indicating that the requested surveys occurred. **Study 8: Special-Status Terrestrial Wildlife Species and Habitats, Including Amphibians and Invertebrates:** The Forest Service requested this study to assess the potential for effects to special-status wildlife species, including amphibians, and their habitats, based on known occurrences and/or the likelihood of occurrence and the scope of project activities. FERC Response: The Corps' DEIS assesses potential impacts to special-status species in the Moffat Collection System enlargement area, including federal and state listed threatened, endangered, and candidate species; Forest Service Sensitive species listed for Routt, Arapaho, and Roosevelt Forest lands; Bureau of Land Management Sensitive species; and Colorado Natural Heritage Program listed species. Forest Service Response: • Analysis of effects to special-status species should include ESA-listed (endangered, threatened, and candidate) taxa; USFS sensitive species based on the current Region 2 list, and management indicator species (MIS) for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP); all categories currently tracked by the Colorado Natural Heritage Program (CNHP), including plants, birds, mammals, fish, invertebrates, and natural communities (plants, natural communities, and fish are covered in other study requests); species of local concern specific to the project, if any, and migratory birds not included in the above categories. • The tables, located in Enclosure 2, (Tables 1-5, beginning on page 55) contain species lists applicable to the Arapaho and Roosevelt National Forests and Pawnee National Grasslands (ARP), current as of December 2009. Federally Proposed, Threatened, and Endangered species are displayed in Table 1; Forest Service Sensitive Species in Tables 2A and 2B; Management Indicator Species in Table 3; and Plant Species of Local Concern in Table 4. This document includes terrestrial wildlife and plant species. See Fish comments for fish and other aquatic species. All species listed in these tables should be considered for analysis for projects on the ARP, and reasons for exclusion from analysis should be documented. Page 7 of 8	*(CDOW) Natural Diversity Information System (NDIS) database is cited multiple times with a 2005 date. Current (2009) NDIS data are available and should be cited instead of the outdated version. First paragraph on page 3-170: It is mentioned under the discussion for mule deer on the previous page that there are no migration corridors. Under the discussion for elk, migration corridors are not mentioned; however, according to CDOW NDIS 2009 data, the Gross Reservoir area is within a migration corridor.* **Response #738-103:** Please see the response to Comment ID 3550. Information on the elk migration corridor at Gross Reservoir has been added to the FEIS. ***Comment #738-104*** *(ID 3595)**:*** *Section 3.7.1.1, pages 3-170 and 3-171, Small and Medium-sized Mammals: Second paragraph page 3-170: Other species known to occur are discussed, without mention of how they are known to occur (observations during field surveys, local knowledge, database, etc.) and whether they are known to occur in the Gross Reservoir area, or assumed to occur based on habitats present in the project area.* **Response #738-104:** The occurrence of small and medium sized mammals has been clarified FEIS Section 3.9.1.1. Identification of species likely to occur was based primarily on habitats and reported ranges. ***Comment #738-39*** *(ID 3596)**:*** *List of bat species on page 3-171: Fringed myotis and Townsend's big-eared bat are USFS Sensitive species, therefore should be discussed in Section 3.8 Special Status Species.*

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	Enclosure 4. US Forest Service Comments on FERC Study Request Determinations; Moffat Collection System Project; Denver Water Draft License Amendment Application; Gross Hydroelectric Project, P-2035. • No mention is made in the DEIS of any surveys done for wildlife or special status animal species, either for the 2001 licensing or for the current proposed project, and no reference is made to additional reports that might contain this information. There are no additional available reports or other documentation indicating that the requested surveys occurred. • No discussion is included in the DEIS regarding important wildlife habitats included in the ARP, White River and Pike and San Isabel Forest Plans and included in Study Request 8: existing old growth, old growth development areas, old growth retention, effective habitat, interior forest, and forested and open corridors. GIS data are available from the Forest Service on request. Discussion should include quantification of available amounts of these habitats in the Project Area as compared to amounts available Forest-wide, based on available GIS data and applicable surveys. Surveys for old growth would include surveys previously conducted, available from the Forest Service on request, and site-specific old growth surveys, if any, conducted specifically for this project. In Enclosure 2, (Tables 1-5, beginning on page 55), the USFS has provided detailed lists of all special-status species that may occur in the Project area or that may be affected by water depletions or changes in water levels. These include Federally listed Threatened or Endangered Species (TES), FS Sensitive Species, FS Management Indicator Species (MIS), Species of Local Concern, and Plant Communities of Local Concern. Please refer to these lists for more details regarding plants, animals, and plant communities that should be considered in the Project analysis. Page 8 of 8	**Response #738-39:** Information pertaining to Fringed myotis and Townsend's big-eared bat has been added to the special status species analysis in FEIS Section 3.10. ***Comment #738-40*** *(ID 3597)**:*** *Table 3.7-1 Raptors Likely or Known to Occur in the Gross Reservoir Study Area, page 3-171: Osprey should be added to this table. The USFS installed two osprey nest platforms in 1993 and ospreys have attempted nesting for more than one season since then, though no successful nesting has been documented. Osprey that nest at other relatively nearby areas forage for fish at Gross Reservoir. Also, since there have been previous nesting attempts, the nest platform area should be added to Figure 3.7-4 as a Potential Raptor Nest. Northern goshawk should also be added, particularly since effects to the species are mentioned under both Wildlife and Special Status Species sections in Chapter 4.* **Response #738-40:** Osprey and northern goshawk have been added to Table 3.9-1 in the FEIS, and more information about their occurrence at Gross Reservoir has been added to the description of the affected environment (FEIS Section 3.9.1). The nest platform has been added to Figure 3.9-4 in the FEIS. ***Comment #738-116*** *(ID 3616)**:*** *Last paragraph page 3-171: Flammulated owl is a USFS Sensitive species, therefore should be referenced to Section 3.8 Special Status Species. Also, if owls are considered raptors for this analysis, they should be included in Table 3.7-1 for consistency.* **Response #738-116:** Information on owls was added to FEIS Sections

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	Enclosure 5 USDA Forest Service Study Requests Gross Reservoir Hydroelectric Project, P-2035 March 2010 Gross Reservoir Project Study Request No. 1 **Title of Proposed Study:** Cultural Resource Inventory - This study request is for a complete pedestrian inventory of the area of potential effect for this project. **1.) Goals, Objectives and Information to be Obtained:** In order for the Forest Service (FS) and Federal Energy Regulation Commission (FERC) to be in compliance with the National Historic Preservation Act, as amended (NHPA), Archaeological Resources Protection Act (ARPA) and Native American Graves Protection and Repatriation Act (NAGPRA), an archaeological inventory for cultural resources is required. A cultural resource inventory of the entire Area of Potential Effect (APE) will provide FERC and FS with up to date information regarding cultural resources located within the APE and will allow the agencies to make a recommendation to the Colorado State Historic Preservation Office (COSHPO) as to the significance of these resources and the effect that this project may have on these resources. This consultation is required by 36 Code of Federal Regulations (CFR) Part 800. **2.) Relevant Forest Service Resource Management Goals:** The Forest Service Resource Management Goals are outlined in the Forest Service Manual (FSM) 2360- Heritage Program Management. Specific management goals and objectives that are pertinent to this project are outlined below. FSM 2361.1 – Program Coordination Programs are coordinated at the national, regional, and forest levels to implement the historic preservation activities outlined in NHPA Section 110. NHPA Section 110 requires Federal agencies to develop a program that ensures: 1. Historic properties under the jurisdiction or control of the agency are identified, evaluated, and nominated to the National Register. 2. Historic properties are maintained in a way that considers the preservation of their historic, archaeological, architectural, and cultural values. 3. Historic properties not under the jurisdiction or control of the agency, but potentially affected by agency or agency-authorized activities, are fully considered during planning. 4. The agency's preservation-related activities are carried out in coordination with other Federal, State, and local agencies, Indian tribes, Native Hawaiian organizations, and the private sector.	3.9, 3.10, 5.9, and 5.10 and Table 3.9-1. ***Comment #738-117*** *(ID 3617)**:*** *Table 3.7-2 Common Songbirds in the Gross Reservoir Study Area by Habitat Type. page 3-172: Several species – pygmy nuthatch, warbling vireo, Wilson's warbler, and mountain bluebird - are USFS Management Indicator Species (MIS) for the ARP, which should be noted in this table and referenced to Table 3.7-3 on the following page, and/or the appropriate discussion in Section 3.8.* **Response #738-117:** Pygmy nuthatch, warbling vireo, Wilson's warbler, and mountain bluebird were identified in FEIS Table 3.9-3 as USFS MIS and are discussed in FEIS Section 3.9.1.1. ***Comment #738-118*** *(ID 3618)**:*** *Reptiles and Amphibians, page 3-173: Northern leopard frog is a USFS Sensitive species therefore should be referenced as such and to the appropriate discussion in Section 3.8.* **Response #738-118:** Northern leopard frog is discussed in FEIS Section 3.10.1. ***Comment #738-119*** *(ID 3619)**:*** *USFS Management Indicator Species (MIS), page 3-173: The list in Table 3.7-3 is outdated and needs to be replaced with the May 2005 list. This list is provided in Table 3 of comments to Appendix G. It is unclear why the MIS list is displayed here and the sentence directly above the table refers the reader to further discussion in Section 3.8. Including the list and discussion in the same section would help make the analysis easier to follow.*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 5. The agency's procedures for compliance with NHPA Section 106 follow the implementing regulations at 36 CFR 800. FSM 2360.6 – Heritage Program Activities The study of cultural resources provides a broader understanding of past human interaction with the land. It helps guide actions that affect resources and the people who depend on them, and creates a sense of time and place for all who enjoy and depend on National Forest System (NFS) lands. Heritage Program activities address three broad areas of responsibilities to: 1. Protect historic properties, 2. Share their values with the American people, and 3. Contribute relevant information and perspectives to natural resource management. FSM 2360.63 – Protection and Stewardship Once historic properties have been identified and evaluated, protection measures eliminate, reduce, or mitigate harm to those properties that result from natural processes, illegal activities, overuse, and effects of Forest Service or Forest Service-authorized activities. **4.) Existing Information and the Need for Additional Information**: Cultural resource inventories were conducted in 1997 (Gross Reservoir Hydroelectric FERC License) and 1998 (Winiger Ridge Landscape Assessment). One site that is eligible for the National Register of Historic Places (NRHP) (5BL7019.1) the Resumption Flume has been recorded within the current area of potential effect. Although these inventories were to standard when they were completed, they are now over ten years old and no longer current. In 2006, the Army Corps of Engineers (Corps) conducted an additional cultural resource inventory for the Moffat Collection System Environmental Impact Statement that may be sufficient for the Gross Reservoir FERC licensing project; however, the Forest Service has not been provided the opportunity to review, comment, or consult on this cultural resource inventory. Therefore it is unknown if the 2006 Corps cultural resource inventory covered the entire APE of this project or that the report was to Forest Service standards. **5.) NEXUS Between The Study And The Project**: The Federal Energy Regulatory Commission and the USDA Forest Service are required to comply with the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. 470), and the 36 CFR Part 800. Cultural resource inventories are required to locate and evaluate cultural resources prior to FERC issuing a license for the Gross Reservoir Hydroelectric Station. **6.) Study Methodology**: A Literature search and 100% pedestrian inventory of the APE using the methods and standards as required by FERC, FS and Colorado SHPO will be required. The area of potential effect for this project includes the entire permit area and any FS and/or privately Page 2 of 55	**Response #738-119:** The list of MIS species in FEIS Table 3.9-3 has been updated with a revised list provided by USFS. The sentence referring readers to further discussion in Section 3.8 has been removed from the FEIS. ***Comment #738-21*** *(ID 3620)**:*** *Potential Conservation Areas (PCA), page 3-173: Current Colorado Natural Heritage Program (CNHP) data for PCA's (available on their web site at http://www.cnhp.colostate.edu/) shows Winiger Gulch and South Boulder Creek above Gross Reservoir as one PCA, named Winiger Gulch with an "alias" of "South Boulder Creek above Gross Reservoir". It is designated to protect two rare plant communities, both mentioned in this section, and one rare plant species occurrence, not mentioned in this section but which should be discussed in Section 3.8.* **Response #738-21:** Information on CNHP PCAs has been updated in the FEIS Section 3.9.1.1. The special status species affected environment (FEIS Section 3.10) includes new information about special status plant species at Gross Reservoir based on field surveys conducted by the Corps in the summer of 2010. ***Comment #738-112*** *(ID 3610)**:*** *USFS Managed Areas, page 3-175: Detailed discussion is needed regarding affected environment for important wildlife habitats included in the ARP Forest Plan: existing old growth, old growth development areas, old growth retention, effective habitat, interior forest, and forested and open corridors. GIS data are available from the USFS on request. Discussion should include quantification of available amounts of these habitats in the Project Area as compared to amounts available Forest-wide, based on available GIS data*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 owned lands that may have indirect or cumulative effects from this project. Limited testing of cultural resource sites will be conducted to assess project effects. The Principal Investigator, and field personnel will be appropriately permitted as required by Forest Service. Definition of Cultural Resources Inventory Area of Potential Effect The area of potential effect for this project is defined by the FS as the land located within the license boundary and all areas that may be directly, indirectly or cumulatively affected by the implementation of this project. Resource Definitions Generally, archaeological sites are defined as follows: A Prehistoric Site is 15 or more associated artifacts without associated features. Or a single feature without associated artifacts. Artifacts and/or features may be completely deposited on the surface of the ground, may be partially on the surface and partially subsurface or buried, or may be completely buried. A Historic Site is 15 or more associated artifacts with or without features. In general, cultural material recorded should be 50 years of age or older. One bottle 51 years of age and broken into 50 pieces is not a historic site. Artifacts and/or features, may be completely deposited on the surface of the ground, may be partially on the surface and partially subsurface or buried, or may be completely buried. Discarded modern trash adjacent to highways, roads and two-tracks is not to be recorded. The Agency will review the justification and make the final determination. When an artifact is observed during inventory, it will be flagged, and an intensive examination of an area of 30 meters (m) (100 ft) in radius, or greater, around the find will be undertaken to determine if additional associated artifacts or features are present to determine the extent of the resource. Field Inventory The project area will be inventoried using a maximum of 15-m-wide (50-ft-wide) linear transects to cover the entire APE. The ground surface will be examined for artifacts, features, or other evidence of cultural occupation such as charcoal-stained sediments, with special attention focused on outcrops, cutbanks, eroded areas, anthills, animal burrows, and two-track road exposures. Historic structures, including, but not limited to dugouts, trails/roads/canals, and historic camps will be recorded and evaluated. To conduct field surveys, 75 percent of the ground surface must be visible with no more than 25 percent snow coverage is permitted. Field Recording All sites and Isolated Finds (Ifs) will be recorded on Colorado Cultural Resource Inventory Forms (CCRIFs). Previously recorded sites will be recorded on the Colorado Re-evaluation form, if the previous site forms are not adequate, then the previously recorded sites will be re-recorded as are the newly recorded sites. Newly recorded sites will be mapped with a Global Positioning System (GPS) unit with sub-meter accuracy. All linear site features such as site boundaries, roads, fence lines, and vegetation communities, as well as point features such as the Page 3 of 55	*and applicable surveys. Surveys for old growth would include surveys previously conducted, available from the USFS on request, and any site-specific old growth surveys conducted specifically for this project. This information was requested in the USFS Study Request for Special-Status Terrestrial Wildlife Species and Habitats.* **Response #738-112:** Information on old growth, effective habitat, interior forest and corridors was obtained from USFS and has been added to the analysis of impacts at Gross Reservoir (FEIS Section 5.9.1.1). ***Comment #738-89*** *(ID 3611)**:*** *Section 3.8, Species lists: All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes USFS Sensitive species, Management Indicator species, and rare/local concern plants. These mistakes should be corrected in subsequent versions.* **Response #738-89:** Per consultation with the USFS, the FEIS analysis was updated to include current lists of USFS Sensitive Species, MIS, and rare/local concern plants (FEIS Section 3.10 and Appendix G). ***Comment #738-90*** *(ID 3612)**:*** *Section 3.8, Special Status Species analysis: The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects for special status species (SSS) other than three federally and/or state-listed animal species that are discussed individually.*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 site datum, features, and tools, will be mapped with the GPS unit. Field GPS data for sites will be post-processed using FS acceptable software and projected into Universal Transverse Mercator (UTM), Zone 13 north, North American Datum (NAD) 1983 with electronic shapefiles. All GPS data will be exported into ArcMap 9.0 and/or 9.1 shapefiles and plotted onto the associated geo-referenced U.S. Geological Survey (USGS) 7.5' quadrangle to ensure accuracy and produce location maps of all resources. In addition to the site mapping, project personnel will take overview photographs of each site. Associated features and diagnostic artifacts will be described, measured, recorded with GPS, and photographed, as appropriate. The environmental setting, depositional context, structure, topography, and geographical location will be noted for each site. Limited Testing Methods Following guidelines, eligibility for listing on the National Register of Historic Places (NRHP) of all sites within the project survey corridor will be first assessed based on surface evidence. If the surface evidence is inadequate to assess the potential of the site to provide data important to answering questions about the prehistory or history of the region. In such cases, limited testing will be carried out for the following purposes: 1. Testing to evaluate significance, usually under criterion D. 2. Testing to assess the effects of the undertaking on an eligible site. 3. Testing to look for buried cultural remains when there is reason to expect a great potential for significant cultural resources where surface evidence is absent. 4. Testing to develop a data recovery plan for an affected National Register eligible site. Methods of Evaluative Testing A phased approach will be utilized for evaluating site eligibility. The type of evaluative testing that is used can have variable impacts on a site, although when using mechanical testing (backhoe trenching) increased impact does not always result in greater data recovery. Evaluation based on surface evidence, shovel or auger probes, and where necessary, limited formal excavation will be carried out under Project Archaeologist's existing permit for survey and limited testing. Anything beyond this will be coordinated with the FERC and FS archaeologists, Colorado SHPO and the project proponent. Any testing beyond that specified in the permit will also require consultation with the SHPO. Evaluation from Surface Evidence Where possible, evaluations from surface evidence will utilize existing exposures such as cutbanks, blowouts, or the windward side of dunes. Natural disturbances such as animal burrows and backdirt, entrenched animal trails and ant beds, or human-caused disturbances such as road-cuts or trenches will also be examined. However, if the existing site conditions do not provide sufficient evidence to determine NRHP eligibility or project effect, some form of subsurface investigation will be conducted using one or more of the specified methods. It will not be assumed that no subsurface deposits are present simply because none are visible in areas with sparse vegetation cover. Page 4 of 55	**Response #738-90:** The Corps assumes this comment refers to the discussion of special status species at Gross Reservoir. Additional information has been added to the FEIS for other special status species (FEIS Sections 3.10 and 5.10). In addition, a Special Status Species Technical Report (FEIS Appendix G) has been developed that includes the results of 2010 botanical and wildlife surveys conducted by the Corps at Gross Reservoir and consideration of all USFS sensitive species. ***Comment #738-113*** *(ID 3613)**:*** *Section 3.8.0, page 3-195, Overview: No information is presented in this section indicating there were surveys for SSS, and no reference is made to additional reports that might contain this information. USFS Study Requests included specifications for wildlife and plant surveys. There are no additional available reports or other documentation indicating that the requested surveys occurred. See also comments under Section 3.5 Vegetation above re: plant surveys. Second paragraph: The first sentence states that "Information was obtained from… previous studies and reports…." This should include, and should reference here, relevant information in Articles to the 2001 FERC relicense and/or the USFS 4(e) conditions, such as results of wildlife and plant surveys that are relevant to the Project. Fourth (last) paragraph: The first sentence refers to CNHP 2005 data, which is outdated. A current list of USFS Region 2 Sensitive Species for the Arapaho and Roosevelt National Forests is provided under comments to Appendix G.* **Response #738-113:** Please see the response to Comment ID 3615. The results of previous surveys described in Article 410 of the 2001 FERC relicense have been

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Collection Collection of surface archaeological or related material during an initial cultural resources survey or inventory is generally discouraged. Any artifact collection will be done in reference to an established datum point. A total surface collection policy will not be allowed. Diagnostic artifacts will be collected when found on FS-managed surfaces unless the FS states otherwise. All artifacts collected will be described within an Appendix of the main Class III report and all materials collected during evaluative and effects testing will be curated at a facility that meets the standards specified in 36 CFR part 79. Non-Archaeological Historic Sites or Components Non-archaeological historic sites or sites with non-archaeological historic components are those primarily assessed for NRHP eligibility under Criteria A, B, or C, rather than Criterion D. These historic sites are known to mainly include linear historic features, such as transportation routes and water conduits, standing building and structure sites, and potentially extend to any historic feature on an otherwise archaeological site, such as TCP features that may be NRHP-eligible under Criterion A. The integrity of historic sites will be addressed using the guidelines presented in National Register Bulletin 15, which defines the seven elements of integrity as location, design, materials, workmanship, setting, feeling, and association. Steps to recording and evaluating historical sites and site components will proceed with proper qualitative and quantitative documentation of site features, bounds, and environment on site forms, in photographs, and through site mapping, as for any other cultural property. This documentation will be used to assess physical integrity of site features and on-site setting. Documentation will use photography from key observation points to and from site locations and rely on other available tools to convey information for agency review, such as existing aerial photographs, Government Land Office (GLO) or other historic map copies, and digital elevation/viewshed models, where appropriate. DISCOVERY OF HUMAN REMAINS Although unlikely, it is possible that test excavations may reveal human remains. Cessation of ground-disturbing activity will encompass a sufficient area to protect the discovery and provide a buffer zone for adequate and safe investigation of any other associated features or artifacts. A buffer area no smaller than 30 by 30 m (approximately 100 by 100 ft) around the discovery will be established, but this area can be expanded if deemed necessary. Care will be taken to prevent any further disturbance of the potential human remains. After all testing activity around the discovery has been halted and while the notification procedure is being implemented, steps will be taken to protect the possible/known human remains, including: • ensuring that no other ground-disturbing activities occur within the buffer zone of the discovery; • preventing vehicle traffic through that portion of the undertaking beyond that necessary to remove vehicles and equipment already within the area; and Page 5 of 55	described and referenced in the FEIS 3.10 and Special Status Species Technical Report (Appendix G). The list of USFS Region 2 sensitive and local concern species addressed in the analysis has been updated using the lists provided by USFS (Appendix G). ***Comment #738-91*** *(ID 3614)**:*** *Section 3.8.1.1, page 3-195, Gross Reservoir: Bald Eagle: The bald eagle is now a USFS Sensitive species and should be referenced as such.* **Response #738-91:** FEIS Section 3.10 identifies bald eagles as a USFS-listed sensitive species. ***Comment #738-115*** *(ID 3615)**:*** *Other Special Status Species, page. 3-197: This section should list, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), all federally and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously addressed under Vegetation in Section 3.5, under Wildlife in Section 3.7, or earlier in Section 3.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species which should be considered. There is no reference here to any plant species including USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense, which are documented and mapped in License Article 410. This section and/or supporting documents should discuss plant surveys that have occurred and species found. No reference is made to any additional reports that might contain this information. For Special Status Species found in the*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 • providing protection in the form of tarps, shoring, protection from the elements, and any other procedures necessary to ensure preservation of the remains. The measure to protect the remains and any associated artifacts will remain in effect until Denver Water has received notice from the lead agency (FERC) to proceed with the site inventory, evaluation and/or testing in the buffer zone. For human remains and associated artifacts discovered on federal land, the project archaeologist will stop testing in the vicinity of the discovery. The project archaeologist will immediately notify the USFS/ archaeologist *on the affected National Forest*. The project archaeologist will also notify the relevant county coroner or sheriff. The discovery will be secured and protected until such time as appropriate disposition has been determined, in accordance with applicable local, state, and federal statutes. For Native American human remains on federal land, funerary objects, sacred objects, and objects of cultural patrimony, the USFS and FERC will meet the requirements of the Native American Graves Protection and Repatriation Act for all inadvertent discoveries and discovery situations on a case-by-case basis in accordance with 43CFR10. In accordance with 43CFR10, testing may resume at the location 30 calendar days after certification by the FERC Authorized Officer. All reasonable measures will be taken to resolve any issues regarding affiliation and disposition of discovered remains within this 30-day period. For all other human remains and associated artifacts, the procedures identified in the 1989 Guidelines, Colorado Inadvertent Burial Discovery Procedures, will be followed. If the human remains are found on private or state lands, archaeologists will follow the requirements of Colorado Revised Statutes (CRS) regarding the discovery of human remains during an anthropological investigation (CRS 24-80-1302). These read as follows: (1) Except as provided in section 24-80-1303 with regard to anthropological investigations, any person who discovers on any land suspected human skeletal remains or who knowingly disturbs such remains shall immediately notify the coroner of the county wherein the remains are located and the sheriff, police chief, or land managing agency official. (2) The coroner shall conduct an on-site inquiry within forty-eight hours of such notification to attempt to determine whether such skeletal remains are human remains and to determine their forensic value. If the coroner is unable to make such determinations, the police chief, the sheriff, the coroner, or the land managing agency official shall request the forensic anthropologist of the Colorado Bureau of Investigation to assist in making such determinations. If it is confirmed that the remains are human remains but of no forensic value, the coroner shall notify the state archaeologist of the discovery. The state archaeologist shall recommend security measures for the site. (3) Prior to further disturbance, the state archaeologist shall cause the human remains to be examined by a qualified archaeologist to determine whether the remains are more than one hundred years old and to evaluate the integrity of their archaeological context. Complete documentation of the archaeological context of the human remains shall be accomplished in a timely manner. Page 6 of 55	*project area or that may be impacted by the project, documentation should be provided in the DEIS and/or supporting documents that includes overall species population status; status of other known populations, especially near the project area; evidence that current literature (including USFS Rocky Mountain Region Species Conservation Assessments available at http://www.fs.fed.us/r2/projects/scp/assessments/index.shtml) was reviewed and incorporated; and consultation with species experts. Two of these assessments (Botrychium species and boreal toad) are listed under References, but many more are available and pertinent to this analysis. As discussed under Section 3.5 Vegetation above, 2005 and 2006 vegetation surveys did not appear to include specific surveys for USFS Sensitive and rare/local concern plants, and no reference is made to any additional reports that might contain this information. The information presented does not address the USFS Study Requests for surveys for wildlife and plants, and there are no additional available reports or other documentation indicating that the requested surveys occurred.* **Response #738-115:** The list of species addressed in the EIS analysis has been updated using the lists provided by USFS. Species that are likely to occur or be affected are addressed in the FEIS Section 3.10 and other species are identified in Appendix G. A detailed analysis, including reference to conservation assessments and other current literature, is provided in a Special Status Species Technical Report (Appendix G). Sensitive species surveys were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results of the surveys are

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 (4) a. If the on-site inquiry discloses that the human remains are Native American, the state archaeologist shall notify the commission. b. The remains shall be disinterred unless the landowner, the state archaeologist, and the chairman of the commission or his designee unanimously agree to leave the remains in situ. c. Disinterment shall be conducted carefully, respectfully, and in accordance with proper archaeological methods and by an archaeologist who holds a permit issued under sections 24-80-405 and 24-80-406. In the event the remains are left in situ, they shall be covered over. d. Without the landowner's express consent for an extension of time, disinterment shall be accomplished no later than ten consecutive days after the state archaeologist has received notification from the coroner pursuant to subsection (2) of this section. e. The archaeologist who conducts the disinterment will assume temporary custody of the human remains, for a period not to exceed one year from the date of disinterment, for the purpose of study and analysis. In the event that a period in excess of one year is required to complete such study and analysis, the commission shall hold a hearing and may, based upon its findings, grant an extension. During the period that the human remains are in the temporary custody of the archaeologist who conducted the disinterment, an archaeological analysis and report shall be prepared. At the same time, a physical anthropological study shall be conducted to include, but not be limited to, osteometric measurement, pathological analysis, and age, sex, and cause of death determinations. The cost of the disinterment, archaeological analysis, and physical anthropological study shall be borne by the state archaeologist except when the human remains are recovered from private lands. In the latter case, if no party can be identified who will bear the cost of such scientific study, the state archaeologist shall bear such costs. f. Upon completion of the studies pursuant to paragraph (e) of this subsection (4), the state archaeologist shall consult with the commission regarding reinterment. (5) Those remains which are verifiably non Native American and are otherwise unclaimed will be delivered to the county coroner for further conveyance to the Colorado state anatomical board. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient**: Denver Water would be required to hire an archaeological contractor to conduct the cultural resource inventories. Contracting costs range from $20 per acre to $50 dollars per acre for the inventory and report. Page 7 of 55	summarized in FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in the Special Status Species Technical Report. ***Comment #738-85*** *(ID 3627)**:*** *Section 3.8.1.1, Page 3-197: 2nd and 3rd lines of page under greenback cutthroat trout discussion: "This species was petitioned for listing as threatened, but a 12 month finding by the FWS in 2007 determined that listing was not warranted at that time (FWS 2007)." This is inaccurate; greenback cutthroat trout have been listed under ESA since 1973. The 12-month finding pertains to Colorado River cutthroat trout, not greenback cutthroat trout.* **Response #738-85:** The sentence referenced in the comment has been removed has from the FEIS. ***Comment #738-18*** *(ID 3628)**:*** *Section 3.8.5.1, page 3-202, Fraser River: River Otter: This species is USFS Sensitive and should be referenced as such. In addition, recent data show that river otters occur in the upper reaches of the Fraser River to the headwaters (CDOW, NDIS 2009; and Doreen Sumerlin, USFS Sulphur Ranger District, personal communication, Feb. 5, 2010). These findings need to be reflected in this section.* **Response #738-18:** River otter has been listed as a USFS sensitive species in FEIS Sections 3.10 and 5.10. ***Comment #738-19*** *(ID 3629)**:*** *Other Special Status Species, page 3-203: This section should include additional species that may occur in wetlands and riparian areas along river corridors – for example, USFS Sensitive plant species Park milkvetch, Selkirk's violet, and other species; plant species of local concern including*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 2** **Title of Proposed Study:** Provide Physical Description of Project Operation Facilities **1.) Goals, Objectives and Information to be Obtained:** The goal of this study is to describe and spatially reference the existing infrastructure for the Moffat Collection System operated by the licensee. The physical description and location of all structures owned or operated by Denver Water is necessary in understanding project operations. The results of this study are critical to assessing how water is transported through the Moffat Collection System, and the potential effects to Forest Service administered aquatic resources. **2.) Relevant Forest Service Resource Management Goals:** These following standards and guidelines were taken from the 1997 revision of the Arapaho-Roosevelt National Forests and Pawnee National Grasslands Land and Resource Management Plan. The additional management measures come from the Watershed Conservation Practices handbook (effective 05/05/2006). Forest-wide Goals for Biodiversity, Ecosystem Health, and Sustainability ▪ ST 4: Establish an upward trend for threatened, endangered, or sensitive plant and animal species (TES) and maintain sensitive species through management activities that recognize TES habitat needs across all levels or scales ▪ ST 6: Bring all 6th level watersheds to a functional condition o None of the watersheds containing the Moffat Collection System are in a functional condition, primarily attributed to water depletions. Watershed Name / Hydrologic Unit Code / Condition Class / Notes on Condition Class Fraser River / 140100010602 / 3 (non-functional) / partially due to Denver Water Department diversions Vasquez Creek / 140100010604 / 2 (functioning-at-risk) / due to water depletions Saint Louis Creek / 140100010606 / 2 / due to cumulative effects of water diversions, roading and harvest Ranch Creek / 140100010608 / 2 / due to cumulative effects of water diversions, roading and harvest Fraser River Upper composite / 140100010610 / 2 / due to heavy past disturbance Bobtail Creek / 140100011002 / 2 / due to flow disruptions by Denver Water Department South Boulder Creek / 101900051002 / 2 / due to water augmentation from Moffat Tunnel; Historic dredge mining Upper S. Boulder composite / 101900051006 / 3 / partially due to water augmentation S. Boulder Middle composite / 101900051014 / 2 / n/a Page 8 of 55	*ferns, three twayblade species (Listera spp.) and others; and USFS MIS Wilson's warbler. A discussion of any surveys that have occurred, whether occurrences have been documented, and available habitat should be included for each species. No reference is made to any additional reports that might contain this information.* **Response #738-19:** The additional plant species have been added to the list of species in Appendix Table G-5 and are assessed where appropriate in the text of the FEIS (Section 5.10). Additional information on sensitive species is provided in the Special Status Species Technical Report (Appendix G). Park milkvetch is classified as an obligate wetland plant but is not known to occur in Grand County. Selkirk's violet is not a wetland indicator species and is not known to occur in Grand County. Wilson's warbler is addressed in the wildlife analysis in FEIS Sections 3.9 and 5.9. No surveys for sensitive or rare plants were conducted for the river segments because of the large areas involved and the minimal impacts to riparian habitat that would occur from changes in flows from the Project. A discussion of the magnitude and type of impacts to riparian habitat is provided in Section 5.8 of the FEIS, which includes new information developed in responses to comments on the DEIS. CNHP data was also not obtained for the river segments due to the large areas involved and the minimal impacts to riparian habitat that would occur from changes in flows. The Corps requested data that is not currently available through CNHP on November 22 and December 13, 2010. To date, the Corps has not yet received this data and therefore it is not included in the FEIS.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 ▪ ST 7: Maintain or improve water quality, stream processes, channel stability, and aquatic management indicator species habitats, and riparian resources, while providing for municipal and agricultural uses Operational Goals, Standards and Guidelines ▪ ST 9 (WCP Management Measure 4): Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand flood flows, and allow free movement of resident aquatic life. ▪ ST 10 (WCP Management Measure 5): Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health. ▪ ST 12 (WCP Management Measure 7): Cooperate with state, tribal, and local governments and holders of water rights to manage water resources to minimize damage to scenic and aesthetic values, fish and wildlife habitat, and to otherwise protect the environment. **4.) Existing Information and the Need for Additional Information:** There is limited information on the licensee's infrastructure. There is limited information on the physical dimensions and diversion capacity of each diversion and maximum delivery capacity of distribution facilities at the local scale, and water transport through Moffat Collection System at the project scale. The information at these two scales is important in assessing the cumulative impacts of project effects as well as the site-specific effects of the diversion structures to aquatic dependent resources. Some information exists as to the general location of each instream diversion structure and instream flow requirements for those stream segments with required flow releases. ▪ Gage records for South Boulder Creek: South Boulder Creek has a number of gages that are maintained by Denver Water. The gages appear to be non-operational during the winter months. ▪ Williams Fork Instream Flow Determination (Russel and Puffer, 1976) ▪ Metropolitan Denver Water Supply Systemwide/Site-specific Environmental Impact Statement ▪ Hydrological Summary for the Williams Fork River Basin (DWD 1975) ▪ Grand County Stream Management Plan (Tetra Tech et al. 2008) There is no comprehensive source or compilation of information on the basic operation of Denver Water Department's Moffat Collection System. The Forest Service is primarily interested in the infrastructure that may impact National Forest System Lands. Diversions from the west slope (Williams Fork Basin and the Fraser River Basin) are transported across the Continental Divide and released into South Boulder Creek. The flow of water through west slope infrastructure is unknown and needs to be assessed during this proceeding. Understanding the potential routes of water and all infrastructure associated with the project will provide the Forest Service with the necessary information to determine the need or type of mitigation necessary for the adequate protection and utilization of the National Forests as required under the Page 9 of 55	***Comment #738-64*** *(ID 3630)**:*** *Other Special Status Species paragraph Page 3-203: The following SSS are excluded from this discussion: mountain sucker, greenback cutthroat trout, lake chub, and sensitive mollusk (Rocky Mountain capshell).* **Response #738-64:** Information on GB cutthroat trout in West Slope streams has been added to the FEIS Section 5.10.5. Rocky Mountain capshell snail, lake chub and mountain sucker are not known to occur in the study area and are therefore not analyzed in the the FEIS. However, they have been added to the list of special status species considered for analysis (Appendix Table G-5). ***Comment #738-65*** *(ID 3631)**:*** *Section 3.8.5.2, pages 3-203 and 3-204, Williams Fork River: Additional species should be included – see comment re: Section 3.8.5 River Otter and other Special Status Species above.* **Response #738-65:** Colorado NDIS does not include this portion of the Williams Fork River within the overall range of river otter. FEIS Section 3.8.5.2, however, has been modified to state that river otter may occur in the Upper Williams Fork River. The additional plant species have been added to the list of species in Appendix Table G-5 and are assessed where relevant in FEIS Section 5.10. Additional information is provided in the Special Status Species Technical Report (Appendix G). Information on GB cutthroat trout in West Slope streams has been added to the FEIS (Section 5.10.5). Rocky Mountain capshell snail, lake chub and mountain sucker are not known to occur in the study area and are therefore not discussed in the

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Federal Power Act and other statutes governing the management of Forest Service administered resources. **5.) NEXUS Between the Study and the Project:** The diversions on approximately 35 west slope streams are the primary sources of water for Gross Reservoir. These 35 structures make up the Moffat Collection System which transports water across the Continental Divide to South Boulder Creek which flows directly into Gross Reservoir. Therefore, streams on the west slope are directly connected to the operations of Gross Reservoir. The results of this study will be used to inform the Forest on the operations of Denver Water on Forest streams. **6.) Study Methodology:** The study is to include the following components: (a) physical description (height of structure, diversion capacity, any mitigation measures such as fish passage facilities, fish screens, priority bypass flow devices, or sluice gates to pass sediment) and location of all diversion structures (which includes all intakes, tunnels, ditches, pipelines, holding ponds, etc.), and (b) a flow diagram of all potential routes of water through the Moffat Collection System. ***STUDY AREA*** The proposed study area for describing the physical infrastructure includes all streams with diversions and distribution facilities for the Moffat Collection System. This includes 31 streams in the Upper Fraser River basin and four streams in the Upper Williams Fork River basin, as well as the receiving stream, South Boulder Creek (upstream of Gross Reservoir). ***ANALYSIS*** The analysis will depend on the results of the operational hydrology study for the Moffat Collection System. CONSISTENCY WITH GENERALLY ACCEPTED PRACTICE The expected product of this request is the physical description of existing facilities and their location in a GIS compatible database. The anticipated approach would be to collate existing information on all structures and then incorporate that information into a GIS compatible format. Collating and reporting information is a standard practice. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient:** The Forest Service assumes that the information requested on physical structures is existing information. There would be minimal effort to collate that information. Additional effort is needed to transfer some of this information into a GIS compatible format. Therefore, this is purely an office exercise. The estimated cost for a staff person (equivalent to a GS-11 in Federal Service) would be around $3,200 (see table below). Staff Level: GS-11, step 5 — Role: Collate information and draft report — Cost per day: $352 — Number of Days: 8 — Total Cost: $2816 Staff Level: GS-12, step 5 — Role: Review product — Cost per day: $422 — Number of Days: 1 — Total Cost: $422 Page 10 of 55	text of the FEIS. However, they have been added to list of special status species considered for analysis (Appendix Table G-5). ***Comment #738-22*** *(ID 3621)**:*** *Section 3.8.5.3, page 3-204, Colorado River: Other Special Status Species: Additional species should be included – see comment re: Section 3.8.5 River Otter and other Special Status Species above.* **Response #738-22:** Species considered in the river segments have been updated in the FEIS Sections 3.10 and 5.10. ***Comment #738-23*** *(ID 3622)**:*** *Section 3.8.5.6, North Fork South Platte River: The following statement is made about the Preble's Meadow Jumping Mouse: "The portion of the North Fork South Platte River within Jefferson County is considered within the overall range of Preble's, however no occupied range is located on the North Fork South Platte River in this area." We believe that this statement is in error, because a recent study has documented the Preble's mouse on the North Fork in Jefferson County (private land). In addition, it appears that much of the North Fork in Jefferson County contains suitable habitat for the Preble's mouse.* **Response #738-23:** The occurrence of Preble's meadow jumping mouse on the North Fork South Platte River has been added to FEIS Sections 3.10 and 5.10. ***Comment #738-114*** *(ID 3623)**:*** *Section 3.9, page 3-211, Affected Environment for Aquatic Biological Resources: Table 3.9-1 – includes fish species name that are incorrect due to changes and updates in taxonomy. The correct spelling for cutthroat trout species is Oncorhynchus clarkii sp. In*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Estimated Total Cost | | | | $3238 REFERENCES USDA Forest Service. 1997. Revision of the Land and Resource Management Plan. Arapaho and Roosevelt National Forests and Pawnee National Grassland, Fort Collins, Colorado. Weedin, E.K. 1970. Amendatory Decision to Board of Water Commissioners City and County of Denver Right of Way. U.S. Department of the Interior Bureau of Land Management File 306 Document 158. Denver, Colorado, USA. Tetra Tech et al. 2008. Draft Report Grand County Stream Management Plan Phase II: Environmental and Water Users Flow Recommendations. Grand County, Colorado, USA. USDA Forest Service. Forest Service Handbook 2509.25 Watershed Conservation Practices Handbook. 2006. R2 Amendment 2509.25-2006-2. Denver, Colorado. *Forest Service. 2002. White River National Forest land and resource management plan. Department of Agriculture, Glenwood Springs, Colorado. April 2, 2002* *Forest Service. Undated. Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands land and resource management plan. Department of Agriculture, Pueblo, Colorado.* Page 11 of 55	*addition to Metcalf and others (2007) finding that greenback cutthroat trout "are still at a high risk of extinction", the authors also determined that the greenback lineage has been discovered outside its historic range. The ACOE has a responsibility to analyze the effects on greenback lineage fish outside their native range if they are found to occur elsewhere, as within the DW system. Habitat page 3-213: The DEIS does not adequately explain or describe the fisheries habitat simulations used in the analysis. The DEIS states that habitat simulations were conducted using IFIM. IFIM and PHABSIM are not the same thing. IFIM is an analysis process, whereas PHABSIM is a model which is often used to identify habitat tradeoffs to be evaluated within the IFIM process. Habitat simulations are not generated through the IFIM process, rather they are generated using PHABSIM.* **Response #738-114:** The species names have been corrected in the FEIS. The discussions of cutthroat trout in FEIS Sections 3.11, 4.6.11 and 5.11 have been greatly expanded to include up-to-date information. The uses of IFIM and PHABSIM have been corrected in the FEIS. ***Comment #738-101*** *(ID 3624)**:*** *Nuisance Species page 3-214: Nuisance species are a real problem in Colorado and within the System, with potentially large risks to water infrastructure. DW and the ACOE should recognize the importance of this issue. It should not be treated lightly as it has been in the analysis. New Zealand mudsnails should be included only in the invasive species discussion.* **Response #738-101:** The DEIS contained a discussion of invasive species. FEIS Section 3.11, 4.6.11, and 5.11

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 3** **Title of Proposed Study:** Perform IFIM- PHABSIM study on streams containing cutthroat trout *and high value fisheries* **1.) Goals, Objectives and Information to be Obtained:** The goal of this study is to quantify flow-habitat relationships over a range of discharges to assess the effects of project operations on resident trout habitat in the affected stream reaches. The objective of this study is to develop site specific flow-habitat relationships for each affected stream segment for resident trout. This study will use the hydrographs developed in the "Develop Unimpaired and Regulated Hydrology for Project-affected Streams" study plan to *conduct a Habitat Time Series to* evaluate the relationship between available fish habitat and stream flows, during project operations. The Forest Service is primarily interested in reviewing flow-habitat relationships on the *12* streams that contain resident cutthroat trout where they occupy National Forest Systems Lands *and on streams that provide high value fisheries*. The streams of interest to the Forest Service are listed below: ▪ Fraser River Basin o Cabin Creek o North Fork Ranch Creek o South Fork Ranch Creek o Middle Fork Ranch Creek o Hamilton Creek o Jim Creek o Vasquez Creek o Little Vasquez Creek o *St. Louis Creek* ▪ Williams Fork River Basin o Bobtail Creek o Steelman Creek o McQueary Creek **2.) Relevant Forest Service Resource Management Goals:** The following standards and guidelines were taken from the 1997 revision of the Arapaho-Roosevelt National Forests and Pawnee National Grasslands Land and Resource Management Plan. The additional management measures come from the Watershed Conservation Practices handbook (effective 05/05/2006). Forest-wide Goals for Biodiversity, Ecosystem Health, and Sustainability ▪ Goal 4: Establish an upward trend for threatened, endangered, or sensitive plant and animal species (TES) and maintain sensitive species through management activities that recognize TES habitat needs across all levels or scales ▪ Goal 6: Bring all 6th level watersheds to a functional condition o None of the watersheds containing the Moffat Collection System are in a functional condition, primarily attributed to water depletions. Watershed Name: Fraser River Hydrologic Unit Code: 140100010602 Condition Class: 3 (non-functional) Notes on Condition Class: partially due to Denver Water Department diversions Page 12 of 55	contains revised, expanded discussions of these species, including New Zealand mudsnails, in the Project area. ***Comment #738-83*** *(ID 3625)**:*** *Section 3.9.1.1, page 3-214, Gross Reservoir: In addition to fish, mollusks need to be addressed in the affected environment discussion of Gross Reservoir as they are a Regional sensitive species (Rocky Mountain Capshell snail) and may be present in Gross Reservoir.* **Response #738-83:** Rocky Mountain capshell snail is known to occur in only a few places in Colorado in a narrow elevational range. This species has been found in and near Rocky Mountain National Park. This species has not been identified in the Arapahoe National Forest, in the Boulder Creek drainage, or in Gross Reservoir, which is below the known elevational range in Colorado (approximately 8,700 ft.). Therefore, this species is acknowledged in FEIS Appendix G, but is not analyzed for potential impacts from the Moffat Project. ***Comment #738-84*** *(ID 3626)**:*** *Section 3.9.5.1, Fraser River: Fraser River Mainstem: Page 3-220: The DEIS states "whirling disease has been identified as occurring within the Fraser River mainstem. The rate of infection is relatively high in the lower Fraser River (Nehring et al. 2003)". Why is the infection in the Frazier River so high and why will flow reductions improve Tubifex habitat?* **Response #738-84:** FEIS Section 3.11 describes the reasons that the infection is so high in the Fraser River.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Vasquez Creek 140100010604 2 (functioning-at-risk) due to water depletions Saint Louis Creek 140100010606 2 due to cumulative effects of water diversions, roading and harvest Ranch Creek 140100010608 2 due to cumulative effects of water diversions, roading and harvest Fraser River Upper composite 140100010610 2 due to heavy past disturbance Bobtail Creek 140100011002 2 due to flow disruptions by Denver Water Department South Boulder Creek 101900051002 2 due to water augmentation from Moffat Tunnel; Historic dredge mining Upper S. Boulder composite 101900051006 3 partially due to water augmentation S. Boulder Middle composite 101900051014 2 n/a ▪ Goal 7: Maintain or improve water quality, stream processes, channel stability, and aquatic management indicator species habitats, and riparian resources, while providing for municipal and agricultural uses Operational Goals, Standards and Guidelines ▪ ST 10 (WCP Management Measure 5): Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health. ▪ ST 12 (WCP Management Measure 7): Cooperate with state, tribal, and local governments and holders of water rights to manage water resources to minimize damage to scenic and aesthetic values, fish and wildlife habitat, and to otherwise protect the environment. ▪ ST 50: Manage activities to avoid disturbance to sensitive species which would result in a trend toward federal listing or loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components and other pertinent factors. Special attention will be given during breeding, young rearing, and other times which are critical to survival of both flora and fauna. Forest Service Manual (FSM) on National Species Viability and TES Management Direction: FSM 2670.22 states: Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. A viable population is further defined by FSM 2670.5 as one that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area. FSM 2670.12 – U.S. Department of Agriculture Directives. Page 13 of 55	***Comment #738-20*** *(ID 3632)**:*** *Page 3-222: Fraser River Tributaries: The DEIS states "A total of 31 tributaries to the Fraser River may be potentially affected by the implementation…" "May" should be changed to "will" since these streams are already affected by the project and this effect will continue and get worse with the implementation of these alternatives.* **Response #738-20:** The suggested change has been incorporated into the FEIS Section 3.11. ***Comment #738-44*** *(ID 3633)**:*** *Table 3.9-6: Because of the scope of this analysis, why weren't the data gaps filled in for fish presence upstream of the diversions to get general information on what should be seen downstream of the diversions?* **Response #738-44:** For the purposes of the DEIS, impacts to fish populations upstream of the diversions were not identified as an issue because changes in flow would occur downstream of the diversions. However, in response to comments from the USFS, the discussions of cutthroat trout in FEIS Sections 3.11, 4.6.11, and 5.11 have been greatly expanded to include up-to-date information. This included additional sampling in Fraser River tributary streams in 2010 upstream of diversions. ***Comment #738-120*** *(ID 3634)**:*** *Page 3-225: "In 2005, three sites were dry at the time of sampling….; therefore, no fish were present." These three streams are not intermittent; the reason they were dry is that all of the flow was diverted. The DEIS should explain this; otherwise, the reader may believe they do not flow year-round.*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Departmental Regulation 9500-4 directs the Forest Service to: 1. Manage "habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species." 2. Conduct activities and programs "to assist in the identification and recovery of threatened and endangered plant and animal species." 3. Avoid actions "which may cause a species to become threatened or endangered." FSM 2670.22 - Sensitive Species states: 1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions. 2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. 3. Develop and implement management objectives for populations and/or habitat of sensitive species. FSM 2670.31 - Threatened and Endangered Species In part states: Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate. **4.) Existing Information and the Need for Additional Information:** ▪ Grand County Stream Management Plan (TetraTech et al. 2008) – includes ~~IFIM~~/PHABSIM analyses on the Fraser River, Colorado River, St. Louis Creek, and Vasquez Creek. ▪ U.S. Forest Service stream surveys for all streams containing native cutthroat trout (using Harig and Fausch methodology) collected in 1998-2002. There is no information currently available that allows the Forest Service to assess the effects of project operations to resident trout habitat over a range of discharges for affected stream segments on National Forest System lands. Obvious effects of water diversions include the reduction in stream flow downstream of a diversion facility. The effect of a diversion depends on the quantity being diverted. In addition, water augmentation can alter the hydrology of the receiving stream and change the amount of available fish habitat depending on the amount delivered. Flow-habitat relationships are different for different stream types (step-pool streams, pool-riffle streams, etc.). Therefore, it is preferable to conduct independent studies to develop flow-habitat relationships for the affected stream reaches to assess the relative change in habitat availability over a range of flows. Instream flow studies are an accepted technique to assess the effects of project operations to hydrology and fish habitat in lieu of long-term population studies that establish relationships between project operations and fish populations. The requested instream flow studies will provide the Forest Service with the necessary information to determine the need for and type of mitigation necessary for the adequate protection and Page 14 of 55	**Response #738-120:** These situations have been clarified in FEIS Section 3.11. ***Comment #738-124*** *(ID 3635)**:*** *Pages 3-225-231: There is no consistency in the discussion of fish sampling. As described in the DEIS, the USFS has Right of Way agreements with DW for instream flows in a number of streams within the Moffat Collection system. These instream flows as well as the amount diverted according to DW's water rights are shown in Table 1 below, modified from tables in the DEIS. As can be observed, DW diverts over 95% of the water in just about all of the streams affected by the project on NFS lands. Although the USFS does not dispute DW's right to divert these flows, the agency does dispute the assertion that the effects of the existing and proposed level of diversions on fish are "minimal" (as stated repeatedly in the DEIS) because they primarily occur during spring runoff of normal and wet years. [SEE SOURCE FILE FOR TABLE 1. MOFFAT COLLECTION SYSTEM MINIMUM BYPASS REQUIREMENTS AS COMPARED TO DW WATER RIGHTS FOR SELECTED STREAMS. MODIFIED FROM DEIS TABLES 3.1-8 AND 3.1-7.] The proposed diversions not only have an effect on physical habitat for fish in these streams but the volume of water diverted also has significant potential to entrain fish into the diversion structures and ultimately into the System itself. The possibility of entrainment is not only a concern for introduced brook trout but also for cutthroat trout. Page 3-203 of the DEIS identifies a number of diverted streams in the project area with either pure or hybridized populations of Colorado River Cutthroat populations. According to the DEIS pure populations are known to occur in Hamilton, Jim, Ranch (all three forks) and Little Vasquez Creek. In addition, Vasquez, Cabin and the Fraser River contain populations of CR*

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	utilization of the National Forests as required under the Federal Power Act and other statutes governing the management of Forest Service administered resources.
	
	5.) NEXUS Between the Study and the Project: The diversions on approximately 35 west slope streams are the primary sources of water for Gross Reservoir. These 35 structures make up the Moffat Collection System which transports water across the Continental Divide to South Boulder Creek which flows directly into Gross Reservoir. Therefore, streams on the west slope are directly connected to the operations of Gross Reservoir. The results of this study will be used to assess the changes in fish habitat for resident cutthroat trout streams affected by project operations.
	
	6.) Study Methodology: The most commonly used method to establish a flow-habitat relationship to cover a range of discharges is the Physical Habitat Simulation (PHABSIM) (Trihey and Wegner 1981; Milhous et al. 1984). This approach allows the end user to assess the effects of various flow scenarios on different fish species and life stages. In addition, PHABSIM is a component of the Instream Flow Incremental Methodology (IFIM) that facilitates negotiating a range of solutions (Bovee et al. 1998). It is also a robust method that facilitates additional analyses that may be of interest such as assessing the effects of different operation scenarios on invertebrate or riparian habitat. This method will be utilized on those streams containing native cutthroat trout. Flow-habitat relationships should be developed for stream containing resident cutthroat trout above and below the diversion structure. Flow-habitat relationships for the juvenile, adult and spawning life stages of resident cutthroat trout should also be developed for each study stream.
	
	There should be approximately 12-16 transects upstream and downstream of each diversion structure for the *12* identified streams. The transect sites should capture representative habitat types for each stream and include habitat types important for fish (i.e. pools and pool tailouts, low gradient riffles, and glide or run habitats*), and capture changes in physical habitat caused by the diversion.* The representative habitat types should be selected at least 10 channel widths (upstream and downstream) from the diversion structure.
	
	STUDY AREA
	
	The proposed study area for the development of flow-habitat relationships using IFIM PHABSIM includes those streams that contain resident cutthroat trout *and on streams that provide high value fisheries* , which are:
	▪ Fraser River Basin
	  o Cabin Creek
	  o North Fork Ranch Creek
	  o South Fork Ranch Creek
	  o Middle Fork Ranch Creek
	  o Hamilton Creek
	  o Jim Creek
	  o Vasquez Creek
	  o Little Vasquez Creek
	
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		Cutthroat that are known to be hybridized with other cutthroat or rainbow. Cutthroat are likely to be more impacted by increased diversions during the spring as proposed by DW since they are spring spawners and are likely to be migrating looking for potential spawning sites. The combination of increased activity in streams where almost all of the water is being removed at DW diversion points means Colorado River cutthroat trout (a Region 2 Sensitive Species) are highly susceptible to entrainment during this period. This potential effect is not addressed in either the ACOE DEIS or the DW LA for the project. Page 3-218 describes the geographic scope of the analysis as focusing on streams where "the annual change in flow is minimal but changes in several months of an average year are greater than 10%." Although an increase in 10% of diversion during wetter months may not seem like much, this increase becomes significant when over 95% of the stream is already diverted.
		
		Response #738-124:
		The comment is incorrect that the DEIS states that the existing diversions have minimal effect on aquatic resources downstream of the diversions. The DEIS and FEIS Sections 4.6.11 and 5.11 state that the Project would have an additional minor adverse effect on the streams compared to existing conditions. The FEIS in Section 3.11 has been revised to more clearly describe the existing conditions in the Fraser River tributary streams.
		
		The extent that the diversion structures would entrain individual cutthroat trout would not change appreciably with the additional diversion of water with the Project. These cutthroat populations have sustained themselves quite adequately for decades since the diversions were first installed, and the additional diversions during a few months in some of the wetter years should not affect the ability of the

Comment Information	Comment	Comments and Responses
	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 o *St. Louis Creek* ▪ Williams Fork River Basin o Bobtail Creek o Steelman Creek o McQueary Creek ***ANALYSIS*** This study will develop a flow-habitat relationship for each of the *12* streams identified in "Study Area." The output from the models provided in the PHABSIM system will be study site specific Weighted Usable Area (WUA per 1,000 ft of stream) for each life stage at each simulated flow. WUA versus flow curves will be developed to aid in interpretation of the flow-habitat relationships. *The results of the hydraulic analysis will yield a flow-habitat relationship for cutthroat trout juvenile, adult and spawning life stages. A Habitat Time Series analysis will integrate the flow-habitat relationship with stream hydrology for different operation scenarios to assess the effects of various project operation scenarios to cutthroat trout habitat.* CONSISTENCY WITH GENERALLY ACCEPTED PRACTICE The proposed study methodology to develop flow-habitat relationships using the PHABSIM method is widely used to assess the effects of project operations that alter the hydrology of streams and fish habitat and is commonly applied in mountain streams. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient**: Site-specific studies will only be needed on streams containing cutthroat trout. To conduct a PHABSIM of at least 12 transects on 12 streams will cost an estimated $15,000 per stream. Therefore, the estimated total cost is $*180,000*. REFERENCES Bovee, K.D., B.L. Lamb, J.M. Bartholow, C.D. Stalnaker, J. Taylor, and J. Henriksen. 1998. Stream habitat analysis using the Instream Flow Incremental Methodology. U.S. Geological Survey, Biological Resources Division, Technical Report USGS/BRD-1998-0004. Milhous, R.T., D.L. Wegner, and T. Waddle. 1984. User's guide to the Physical Habitat Simulation System (PHABSIM). Instream Flow Information Paper No. 11, U.S. Fish and Wildlife Service FWS/OBS-81/43. Trihey, E.W. and D.L. Wegner. 1983. Field data collection procedures for use with Physical Habitat Simulation system of the Instream Flow Group. U.S. Fish and Wildlife Service, Cooperative Instream Flow Service Group, Fort Collins, Colorado. USDA Forest Service. 1997. Revision of the Land and Resource Management Plan. Page 16 of 55	populations to continue to sustain themselves. ***Comment #738-125*** *(ID 3636)**:*** *Table 2 (below) contains data on fish distribution and relative abundance in the vicinity of project diversions for streams with minimum bypass requirements as summarized from DEIS Chapter 3 section 3.9.5.1. Several sources of data were reported in the DEIS. Fish/Ha is used here because it is the most consistent data reported for streams of interest. Information on fish assemblages relative to density estimates is uncertain. Sculpin were often sampled and are likely included in any fish densities reported. The DEIS (under General Observations on page 3-231) draws very little in the way of conclusions from the fish sampling data presented other than to say that some diversions have succeeded in protecting upstream cutthroat populations from being overwhelmed by brook trout. Looking at this summary of the fish sampling data presented in the DEIS, it is apparent that reliable, replicated data on fish distribution and density is not available and is needed in these streams to be able to adequate evaluate the effect of the project on fish populations. For instance, in the preceding table, for streams with mandatory instream flow requirements, there are no data whatsoever on fish populations upstream of the diversion sites for 4 streams. On another stream, Vasquez Cr., although fish were present, there is no density information. On three other streams, fish populations upstream of the diversion sites are lower than downstream even though flows are higher. When the information gaps are coupled with the inconsistencies in the data presented, the USFS questions how the DEIS can basically conclude that the increases in diversion proposed by DW with no additional mitigation such as screening at project diversion sites can be expected to have no adverse affects to fish in affected streams Table 2. Fish distribution and*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Arapaho and Roosevelt National Forests and Pawnee National Grassland, Fort Collins, Colorado. *Forest Service. 2002. White River National Forest land and resource management plan. Department of Agriculture, Glenwood Springs, Colorado. April 2, 2002.* *Forest Service. Undated. Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands land and resource management plan. Department of Agriculture, Pueblo, Colorado.* Weedin, E.K. 1970. Amendatory Decision to Board of Water Commissioners City and County of Denver Right of Way. U.S. Department of the Interior Bureau of Land Management File 306 Document 158. Denver, Colorado, USA. Tetra Tech et al. 2008. Draft Report Grand County Stream Management Plan Phase II: Environmental and Water Users Flow Recommendations. Grand County, Colorado, USA. USDA Forest Service. Forest Service Handbook 2509.25 Watershed Conservation Practices Handbook. 2006. R2 Amendment 2509.25-2006-2. Denver, Colorado. Page 17 of 55	*abundance, summarized from DEIS, 3.9.5.1. Stream Reach Above Diversion Below Diversion Fish Species Fish/Ha Fish Species Fish/Ha Fraser R. Brook trout (dom.) 437 Brook trout (dom) 456-2440 Cutthroat trout Brown, rainbow St. Louis Cr. Brook trout (dom.) 797 646-5231 CR Cutt Brook trout Vasquez Cr. Brook trout NA Brook Trout (dom.) 1017 Cutt, Rainbow Hamilton Cr. Cutthroat 456-1823 Brook trout 484 Cabin Cr. Cutthroat 257-2088 Cutthroat 269-2419 Ranch (Main) No data No data Sculpin (dom) 133-1615 Brook, Rainbow, Brown Trail Cr No data No data No water No water Hurd Cr. No data No data Brook, Brown Tr. 0-5745 Little Cabin No fish No fish No fish No fish Meadow Cr. No data No data Brook Trout 252-74,371 Brown Trout Little Vasquez Cr.* CR Cutt Avg.= 27 Brook trout Avg= 3471 *No minimum bypass flow requirement* **Response #738-125:** The available data on the Fraser River tributary streams has been updated in FEIS Section 3.11. This included additional sampling in Fraser River tributary streams in 2010 upstream of diversions. The available data from the resource agencies in the FEIS are apparently sufficient for the resource agencies to use in management decisions and, therefore, are also sufficient for the purposes of the FEIS impact evaluation. Using this information, the DEIS and FEIS concluded that there would be adverse effects to streams downstream of the diversions with the Project, not “no adverse effects” as stated in this comment. ***Comment #738-121*** *(ID 3637)**:*** *Page 3-228, North Fork Ranch Creek: Fish presence determination made from no sampling effort upstream of the diversion. According to Hirsch et al. (2006), a document cited throughout the DEIS, North Fork Ranch Creek is a conservation population of CRCT; therefore, it seems that fish*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 4** **Title of Proposed Study:** Perform R2Cross Instream Flow Studies for Non-Cutthroat Trout Streams **1.) Goals, Objectives and Information to be Obtained:** The goal of this study is to quantify baseflows in project-affected streams. The objective of this study is to develop site-specific baseflow needs using R2Cross methodology *above and below diversions* for the following streams in the Fraser River Basin. Of the remaining 23 streams affected by project operations, seven streams were chosen to be included in the R2Cross Instream Flow Study. The following streams were selected because they are of low fisheries value. In an effort to reduce the cost to the applicant, the Forest will accept the risks associated using the less robust methodology on these seven streams. o North Trail Creek o South Trail Creek o Hurd Creek o Little Cabin Creek o East St. Louis Creek o West St. Louis Creek o Fool Creek This information is needed to validate existing or develop new information for flow needs in the listed streams. **2.) Relevant Forest Service Resource Management Goals:** These following standards and guidelines were taken from the 1997 revision of the Arapaho-Roosevelt National Forests and Pawnee National Grasslands Land and Resource Management Plan. The additional management measures come from the Watershed Conservation Practices handbook (effective 05/05/2006). Forest-wide Goals for Biodiversity, Ecosystem Health, and Sustainability ▪ ST 4: Establish an upward trend for threatened, endangered, or sensitive plant and animal species (TES) and maintain sensitive species through management activities that recognize TES habitat needs across all levels or scales ▪ ST 6: Bring all 6th level watersheds to a functional condition o None of the watersheds containing the Moffat Collection System are in a functional condition, primarily attributed to water depletions (Table 1) **Table 1: Moffat Collection System 6th level watershed condition class determination** Watershed Name / Hydrologic Unit Code / Condition Class / Notes on Condition Class Fraser River / 140100010602 / 3 (non-functional) / partially due to Denver Water Department diversions Vasquez Creek / 140100010604 / 2 (functioning-at-risk) / due to water depletions Saint Louis Creek / 140100010606 / 2 / due to cumulative effects of water diversions, roading and harvest Ranch Creek / 140100010608 / 2 / due to cumulative effects of water diversions, Page 18 of 55	*should be present somewhere in the drainage.* **Response #738-121:** Please see the response to Comment ID 4009. ***Comment #738-122*** *(ID 3638)**:*** *Page 3-228, Main Ranch Creek: "No data available upstream of the diversion." This data gap should be addressed in subsequent analysis.* **Response #738-122:** Please see the response to Comment ID 4009. For the purposes of the DEIS, impacts to fish populations upstream of the diversions were not identified as an issue because changes in flow would occur downstream of the diversions. ***Comment #738-123*** *(ID 3639)**:*** *Page 3-229, South Fork Ranch Creek: The ACOE states, "The diversion… apparently hasn't isolated cutthroat trout." While this may be true, a rock diversion dam was built in 2005 upstream of the DW diversion to improve blockage of brook trout. Data is available from CDOW since 2005 to assess the effectiveness of this barrier.* **Response #738-123:** Please see the response to Comment ID 4009. ***Comment #738-144*** *(ID 3667)**:*** *Sampling should occur both downstream and upstream of the diversion structures in streams with water. Meadow Creek supports a robust population of brook trout from the diversion up to the spillway of the reservoir. For Hamilton and Cabin Creek, it should be disclosed that the diversion dam has acted as a barrier to invasion by brook trout like as with the discussions about Little Vasquez and South Fork Ranch Creeks?*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 roading and harvest Fraser River Upper composite 140100010610 2 due to heavy past disturbance Bobtail Creek 140100011002 2 due to flow disruptions by Denver Water Department South Boulder Creek 101900051002 2 due to water augmentation from Moffat Tunnel; Historic dredge mining Upper S. Boulder composite 101900051006 3 partially due to water augmentation S. Boulder Middle composite 101900051014 2 n/a ▪ ST 7: Maintain or improve water quality, stream processes, channel stability, and aquatic management indicator species habitats, and riparian resources, while providing for municipal and agricultural uses Operational Goals, Standards and Guidelines ▪ ST 10 (WCP Management Measure 5): Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health. ▪ ST 12 (WCP Management Measure 7): Cooperate with state, tribal, and local governments and holders of water rights to manage water resources to minimize damage to scenic and aesthetic values, fish and wildlife habitat, and to otherwise protect the environment. ▪ ST 50: Manage activities to avoid disturbance to sensitive species which would result in a trend toward federal listing or loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components and other pertinent factors. Special attention will be given during breeding, young rearing, and other times which are critical to survival of both flora and fauna. Forest Service Manual on National Species Viability and TES Management Direction: FSM 2670.22 states: Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. A viable population is further defined by FSM 2670.5 as one that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area. FSM 2670.12 - Secretary of Agriculture's Policy on Fish and Wildlife. Departmental Regulation 9500-4 directs the Forest Service to: 1. Manage "habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species." 2. Conduct activities and programs "to assist in the identification and recovery of threatened and endangered plant and animal species." 3. Avoid actions "which may cause a species to become threatened or endangered." Page 19 of 55	**Response #738-144:** Additional sampling was conducted in Fraser River tributary streams in 2010 upstream of diversions and this information has been incorporated into the FEIS in sections 3.11, 4.6.11, and 5.11. The existing description of Meadow Creek has been updated in Section 3.11. ***Comment #738-148*** *(ID 3668)**:*** *Page 3-231, Comments on the ACOE General Observations: The DEIS states, "Fool, North Fork Ranch, and South Fork Ranch creeks were dry downstream of the diversions at the time of sampling in 2005. This indicates these streams are incapable of maintaining viable, reproducing populations of fish." This statement contradicts page 3-223, paragraph 4, lines 1-4 where the DEIS states, "In "severely" diverted streams with flow reductions of more than 90%, there are sections just downstream of the diversion that may be dry…fish are probably excluded." The DEIS states: "Several other streams had water, but no fish present." Explain why fish wouldn't be found, especially brook trout as they are found virtually everywhere. "The Colorado River cutthroat trout populations in Hamilton, Vasquez, and Little Vasquez creeks are considered genetically pure, while those in Cabin, South Fork Ranch, Jim, and Trail creeks are known to be hybridized with either rainbow trout or other cutthroat trout subspecies (Young et al. 1996)." This statement is incorrect for the following reasons: • The distinction of genetic purity in cutthroat trout is not critical to this analysis. Cabin and South Fork Ranch are hybridized with greenback cutthroat trout only; therefore, it doesn't make them less important as compared to those hybridized with rainbow trout or Yellowstone cutthroat trout. This discussion continues throughout the DEIS as if to imply that those streams are less important and those fish inferior. • In the references, Hirsch et al. (2006) was*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 FSM 2670.22 - Sensitive Species states: 1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions. 2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. 3. Develop and implement management objectives for populations and/or habitat of sensitive species. FSM 2670.31 - Threatened and Endangered Species In part states: Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate. The Endangered Species Act (ESA) of 1976 directs federal agencies to protect plant, animal and fish species. All National Forests have standards and guidelines that require that the Forests protect and manage habitat for the recovery and maintenance of viable and diverse habitat and populations of aquatic, terrestrial, and riparian dependent species. These standards and guidelines include requirements for the perpetuation and recovery of plants and animals which are listed as threatened or endangered (TES species) by the US Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NFMS) under the Endangered Species Act (ESA) and sensitive (TES species) by US Forest Service. **4.) Existing Information and Need for Additional Information:** ▪ Grand County Stream Management Plan (Tetra Tech et al. 2008), which includes information about current instream flow requirements for some project-affected streams. ▪ Bureau of Sport Fisheries and Wildlife bypass flow recommendations (1970) for: Fraser River, Vasquez Creek, St. Louis Creek, Ranch Creek, Meadow Creek, Cabin Creek, Hamilton Creek, Trail Creek, Hurd Creek, and Little Cabin Creek. These recommendations are not stipulations for Denver's right-of-way. There is little information available that allows the Forest Service to assess the effects of project operations on aquatic habitats or determine baseflow needs on streams flowing through National Forest Systems Lands. The bypass flow provisions recommended by the Bureau of Sport Fisheries and Wildlife in 1970 used an unknown methodology, making it difficult to determine if they are adequate for the protection of habitat on Forest lands. One of the most obvious effects of water diversions is the reduction in streamflow downstream of a diversion. The effect of a diversion depends on quantity diverted and amount released below the diversion facility. In addition, water diversions alter the hydrology of the diverted stream and change the amount of available fish habitat depending on the amount of water diverted. Therefore, conducting independent studies to develop site-specific standards for habitat protection at critical riffle sites is preferred. The requested instream flow studies will provide the Forest Service with the Page 20 of 55	*cited. This citation should be used in the discussion of Colorado River cutthroat trout populations found within the DW system. Hirsch et al. (2006) is the most up to date assessment available, while Young et al. (1996) is outdated. Hirsch et al. (2006) should be used in CRCT discussions. • Trail Creek is not within the DW collection system and therefore should not be referenced when discussing creeks that contain cutthroat trout. The ACOE has direction from the US Fish and Wildlife Service (FWS), like the rest of the other federal agencies, to treat fish that have been designated Lineage GB (Metcalf et al. 2007) as greenback cutthroat trout. There are a number of Lineage GB populations found outside their historic range within DW's operational boundary. Although some have very recently been designated as Lineage GB, a couple of populations have been designated since 2007 and 2008, before both the BA and DEIS were written.* **Response #738-148:** Please see the response to Comment ID 4009. The existing conditions descriptions of flow and aquatic organisms in diverted tributary streams has been revised and expanded in FEIS Section 3.11. Brook trout and other fish may be excluded from these sections because water is not present year-round. Although there was water present at the time of sampling, the lack of fish indicates that there is not sufficient water at other times of the year, such as in winter. ***Comment #738-149*** *(ID 3669)**:*** *Page 3-231, Benthic Macroinvertebrates under General Observations: The DEIS states: "Fool, North Fork Ranch, and South Fork Ranch creeks were dry downstream of the diversions at the time of sampling in 2005. This indicates these streams are incapable*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 necessary information to determine mitigation necessary for the adequate protection and utilization of the National Forest *reservations* as required under the Federal Power Act and other statutes governing the management of Forest Service administered resources. **5.) NEXUS Between the Study and the Project:** The diversions on approximately 35 west slope streams are the primary sources of water for Gross Reservoir. Most of the diversions on the Arapaho National Forest in Grand County, Colorado, make up the Moffat Collection System which transports the water across the continental divide to South Boulder Creek which flows directly into Gross Reservoir. Therefore, streams on the West Slope are directly connected to the operations of Gross Reservoir. The results of this study will be used to assess changes in fish habitat (East Slope supplementation or West Slope depletion) in the project- affected channels. **6.) Study Methodology:** A commonly accepted methodology to use for instream flow studies is the R2Cross method. The Colorado Water Conservation Board (CWCB) Instream Flow Program developed a standard-setting method that uses three hydraulic parameters as criteria to determine the flows needed for habitat protection. Table 2 describes the hydraulic criteria for each of the three parameters: mean depth, percent of bankfull wetted perimeter, and mean velocity. **Table 2: R2Cross hydraulic criteria for protection of aquatic habitat (Espegren 1996)** Stream top width (ft) | Mean depth (ft) | Bankfull wetted perimeter (percent) | Mean velocity (ft/s) 1–20 | 0.2 | 50 | 1.0 21–40 | 0.2–0.4 | 50 | 1.0 41–60 | 0.4–0.6 | 50–60 | 1.0 61–10 | 0.6–1.0 | > or equal to 70 | 1.0 The assumption with R2Cross is that a discharge to maintain habitat in the riffle is sufficient to maintain habitat in nearby pools for most life stages of fish (Nehring 1979). R2Cross also accounts for seasonal streamflow variability by establishing different streamflow requirements for summer and winter seasons. In the summer, the streamflow recommendations are based on meeting all 3 hydraulic criteria; while the winter flow recommendations are determined by meeting 2 out of 3 criteria. *Measurements should be conducted above and below diversions on each stream.* Critical riffle areas should be selected that are representative of natural riffle conditions. Using the definition as described by Bain and Stevenson (1999), "a riffle is a section of channel, usually between pools, that has a gravel to cobble bed material. The water surface is turbulent with little or no whitewater having average water velocities in the range of .6 ft/s to 1.6 ft/s." The selection of appropriate riffle areas for R2Cross methods includes those riffles that extend across the entire channel, are well defined, and maintain hydraulic control over a range of low to moderate flows. Unnatural alterations to channels can affect the hydraulic parameters at each site, which should be a consideration in selection of riffle areas (Parker and Armstrong 2001). Page 21 of 55	*of sustaining robust, perennial benthic invertebrate communities." This statement is in conflict with what is written on page 3-223.* **Response #738-149:** The existing conditions descriptions of flow and aquatic organisms in diverted tributary streams has been revised and expanded in the FEIS Section 3.11. There is no conflict between the statements on pages 3-231 and 3-223 of the DEIS, this is a matter of degree and extent downstream of the diversions. The FEIS in Section 3.11 has been revised to clarify these points. ***Comment #738-150** (ID 3670)**:*** *Page 3-232, Habitat: There is no discussion of PHABSIM results for juvenile trout in regard to optimum flows and maximum habitat availability for this life stage. Fraser River tributary names are inconsistent between habitat and fish sections and incorrect in some places. The discussion of benthic macroinvertebrates is misleading. High densities and high numbers of taxa do not necessarily represent a healthy stream, depending on what species are found there. Certain species are more tolerant of changes in flow and water quality, and it would be important to present that information as to what species are found where and to make comparisons between upstream and downstream of diversions.* **Response #738-150:** Habitat relationships for juvenile brook trout are not available for this PHABSIM data set and are not included in the EIS. The Fraser River tributary names have been corrected in the FEIS. For the purposes of the EIS, high numbers of species coupled with high density does indicate a healthy stream in the Upper Colorado River Basin. This is assumed in this portion of the FEIS and is

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 ***STUDY AREA*** The proposed study area for both the development of baseflow recommendations and the validation of existing baseflows will include the following streams: ▪ North Fork Trail Creek ▪ South Fork Trail Creek ▪ Little Cabin Creek ▪ Hurd Creek ▪ East St. Louis Creek ▪ West St. Louis Creek ▪ Fool Creek ***ANALYSIS*** This study will develop baseflow recommendations for summer and winter flows based on the three criteria as recommended by CWCB. Flow recommendations are made based on the lowest flow which meets habitat retention criteria. As noted above, R2Cross is the primary methodology used by the Colorado Water Conservation Board for the State's instream flow program. *The study should also include an analysis of changes in hydraulic criteria above and below the diversion.* CONSISTENCY WITH GENERALLY ACCEPTED PRACTICE The proposed study methodology to develop flow recommendations based on hydraulic criteria using the R2Cross method is widely used and applied in mountain streams. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient:** Total cost to obtain the field data and conduct the hydraulic analyses should not exceed $ *30,000*. REFERENCES Espegren, G.D. 1996. Development of instream flow recommendations in Colorado using R2CROSS. Colorado Water Conservation Board, Denver, Colorado. Nehring, R.B. 1979. Evaluation of instream flow methods and determination of water quantity needs for streams in the State of Colorado. Colorado Division of Wildlife, Fort Collins, CO. Parker, G.W., and D.S. Armstrong. 2001. Preliminary assessment of streamflow requirements for habitat protection for selected sites on the Assabet and Charles Rivers, Eastern Massachusetts. U.S. Geological Survey Open File Report 02-340. USDA Forest Service. 1997. Revision of the Land and Resource Management Plan. Arapaho and Roosevelt National Forests and Pawnee National Grassland, Fort Collins, Colorado. Page 22 of 55	appropriate. Although the Corps agrees that there could be cases in other systems with high density and high numbers of species in degraded streams, these situations do not exist in the study streams. The FEIS includes additional discussion of macroinvertebrate species composition in Section 3.11 to make this more clear. ***Comment #738-145*** *(ID 3671)**:*** *Page 3-234, Habitat –Little Vasquez Creek: There is a bypass flow agreement of 0.5 cfs with Grand County Water and Sanitation District. The DEIS doesn't disclose this information.* **Response #738-145:** This bypass flow agreement has been added to the FEIS Section 3.11. ***Comment #738-146*** *(ID 3672)**:*** *Page 3-234, Habitat – Meadow Creek: No mention is made of the reservoir upstream nor how the operation of the reservoir affects available fish habitat. The existing condition of fish habitat below the reservoir and below the diversion should be addressed.* **Response #738-146:** The existing description of Meadow Creek has been updated in FEIS Section 3.11. ***Comment #738-132*** *(ID 3658)**:*** *Section 3.9.5.2, page 3-235, Williams Fork River: Known Lineage GB populations since 2007 are documented to be present in the Upper Williams Fork. This should be identified in the DEIS.* **Response #738-132:** Please see the response to Comment ID 4009.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 *Forest Service. 2002. White River National Forest land and resource management plan. Department of Agriculture, Glenwood Springs, Colorado. April 2, 2002.* *Forest Service. Undated. Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands land and resource management plan. Department of Agriculture, Pueblo, Colorado.* Weedin, E.K. 1970. Amendatory Decision to Board of Water Commissioners City and County of Denver Right of Way. U.S. Department of the Interior Bureau of Land Management File 306 Document 158. Denver, Colorado, USA. Tetra Tech et al. 2008. Draft Report Grand County Stream Management Plan Phase II: Environmental and Water Users Flow Recommendations. Grand County, Colorado, USA. USDA Forest Service. Forest Service Handbook 2509.25 Watershed Conservation Practices Handbook. 2006. R2 Amendment 2509.25-2006-2. Denver, Colorado. Page 23 of 55	***Comment #738-133*** *(ID 3659)**:*** *Page 3-236, Williams Fork Tributaries: "For invertebrates and habitat, potential effects would only occur downstream of the diversions and only the information for these sections of the Fraser River tributaries is described." This is not accurate as the discussion of the tributaries includes upstream and downstream information.* **Response #738-133:** The information described has been incorporated into FEIS Section 3.11. ***Comment #738-138*** *(ID 3660)**:*** *Page 3-238, General Observations for Williams Fork River Tributaries: The DEIS should include updated records for genetics results in the Williams Fork. There is no discussion of how DW operations have impacted Bobtail Creek downstream of the diversion. Figure 3-9.2 (p. 3-247) illustrates the habitat-flow relationships for brown trout, the dominant species in the North Fork. As flows exceed 200 cfs, habitat availability for all life stages declines. In a fishery that is self-sustaining and maintained largely by natural reproduction, loss of habitat for early life stages is particularly detrimental. We understand that mitigation has been proposed; however, based upon the data and modeling presented in the DEIS we believe that the effects of increased flows will be more than moderately detrimental to the trout fishery. Accordingly, we are concerned about the impacts to the "quality" of recreational fishing on National Forest System (NFS) land.* **Response #738-138:** Please see the response to Comment ID 4009. The Corps believes a finding of "moderate impact" to the reach of the North Fork is appropriate. A

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 5** **Title of Proposed Study:** Develop Unregulated and Regulated Hydrology for Project-Affected Streams **1.) Goals, objectives and Information to be Obtained:** The goal of this study is to quantify the effects of the Moffat Collection System (project) operations on the hydrology of affected streams by quantifying unregulated, existing and proposed flow regimes downstream of diversion points. The objective of this study is to develop average daily flow statistics for each diverted and augmented stream that supplies water to Gross Reservoir. A list of the streams is shown as attachment A. The results of this study are the cornerstone to assessing the effects of project operations to Forest Service administered aquatic resources; in particular project effects to stream channel conditions and fish habitat on affected streams (See Study Plan "Perform Instream Flow/Fish Habitat Studies" to quantify relationship between available fish habitat and stream flow during project operation). **2.) Relevant Forest Service Resource Management Goals:** The following resource management goals were taken from the 1997 revision of the Arapaho-Roosevelt National Forests and Pawnee National Grasslands Land and Resource Management Plan (LRMP). Design criteria for the LRMP standards come from the Region 2 Watershed Conservation Practices Handbook or WCPH (FSH 2509.25-2006-2). Forest-wide goals for Biodiversity, Ecosystem Health and Sustainability: Goal 6- Bring all sixth-level watersheds to a functional condition. *None of the 6th level watersheds containing the Moffat Collection System are in functional condition (Class 1), often due to flow disruptions.* **Watershed Name** / **Hydrologic Unit Code** / **Condition Class** / **Notes on Condition Class** Fraser River / 140100010602 / 3 (non-functional) / partially due to Denver Water Department diversions Vasquez Creek / 140100010604 / 2 (functioning-at-risk) / due to water depletions Saint Louis Creek / 140100010606 / 2 / due to cumulative effects of water diversions, roading and harvest Ranch Creek / 140100010608 / 2 / due to cumulative effects of water diversions, roading and harvest Fraser River Upper composite / 140100010610 / 2 / due to heavy past disturbance Bobtail Creek / 140100011002 / 2 / due to flow disruptions by Denver Water Department South Boulder Creek / 101900051002 / 2 / due to water augmentation from Moffat Tunnel; Historic dredge mining Page 24 of 55	definition of impact intensity has been added to FEIS Section 4.6.11. ***Comment #738-137*** *(ID 3661)**:*** *Section 3.13.5.6, North Fork South Platte River: The DEIS (p. 3-285) states that on the North Fork of the South Platte "The quality of fishing on segments open to the public is relatively poor and overall use is low." We would like to point out that recreational fishing is important on NFS land and that some areas experience relatively heavy recreational use by anglers (e.g., vicinity of AG Ranch). While the mainstem may have a higher "quality" fishery, the North Fork is also an important recreational fishery.* **Response #738-137:** The text in FEIS Section 3.13 has been revised to state that recreational fishing is an important activity on USFS lands along the North Fork South Platte River and that some areas can experience heavy use at various times of the year. ***Comment #738-139*** *(ID 3662)**:*** *Chapter 4 General Comment: No analysis was found in this chapter for USFS Sensitive or rare/local concern plant species. Analysis of effects to these species should have been included under Section 4.5 Vegetation, Section 4.8 Special Status Species, or both. This is particularly important because populations of several USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense will be inundated with proposed Gross Reservoir expansion, which is expected to compromise viability for several plant species. There are no additional available reports or other documentation of analysis of effects to individual plant species other than federally listed plant species.* **Response #738-139:** Please see the response to Comment ID 3551.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Upper S. Boulder composite 101900051006 3 partially due to water augmentation S. Boulder Middle composite 101900051014 2 n/a Goal 7- Maintain or improve water quality, stream processes, channel stability and aquatic management indicator species habitats, and riparian resources while providing for municipal and agricultural uses. Operational Goals, Standards and Guidelines for physical resources: Standard 9 (WCPH Management Measure 4)- Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life. *Denver's diversion structures are small dams that cross the entire channel at right angles. These dams do not generally allow for passage of sediment or allow for free movement of resident aquatic life.* Standard 10 (WCPH Management Measure 5)- Conduct actions so that stream pattern, geometry, and habitats maintain or improve long-term stream health. *Out of 35 diversions, less than 1/3rd have bypass flow requirements. The bypasses are for minimum flow releases only. These minimum flow releases are subject to reduction or temporary discontinuation under certain conditions, with the location of bypass reductions at the discretion of Denver. Minimum bypass flows can be insufficient for channel maintenance.* Standard 12 (WCPH Management Measure 7)- Cooperate with state, tribal and local governments and holders of water rights to manage water resources to minimize damage to scenic and aesthetic values, fish and wildlife habitat, and to otherwise protect the environment. WCPH Design Criteria- Cooperate with water users and other interested parties to evaluate how to operate existing water use facilities to meet resource goals. Standard 13 (WCPH Management Measure 8)- Manage water-use facilities to prevent gully erosion of slopes and to prevent sediment and bank damage to streams. WCPH Design Criteria - Do not flush or deposit sediment from behind diversion structures into the stream below. Deposit sediment in a designated upland site. Vegetate or otherwise stabilize spoil piles. WCPH Design Criteria - Mitigate water imports and water disposal (including reservoir releases) so that the extent of stable banks, channel pattern, profile and dimensions maintain or improve long-term stream health in each receiving stream reach. Page 25 of 55	***Comment #738-140*** *(ID 3663)**:*** *Section 4.0, Page 4-1, Introduction, paragraph 2: Limiting the environmental impact of the proposed Moffat Project to existing conditions is inadequate as it does not address how existing operations have affected stream channels. The impacts of existing operations on channels are needed to provide context to the possible impacts caused by the proposed action(s). The nature of channel adjustments to a given perturbation in a stream reach is contingent upon prior conditions such that similar changes in inputs can produce different channel adjustments in different reaches. Is this a baseline issue?* **Response #738-140:** The affected environment within the study area, which is presented in DEIS Chapter 3, is a function of past and present actions. Flow related changes that have occurred in the Fraser River Basin since 1936 are due in large part to Denver Water's existing Moffat Collection System diversions, however, these impacts are attributable to past and present operations of that system, not the proposed Moffat Project. Each resource considered the impacts of past and present projects and diversions. For example, the surface water section of Chapter 3 presents stream flow data at various gages through the Project area for the 30-year period from 1975 through 2004. The historical flows at those gages reflect the effects of diversions associated with Denver Water's existing Moffat Collection System and other in-basin water users. To provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System and each of the Moffat

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 WCPH Design Criteria – Maintain the extent of stable banks in each stream reach at 74% or more of reference conditions. *It is unclear how the diversion structures affect sediment regimes or how Denver disposes of sediment accumulating behind diversions. It is unknown if the extent of stable banks in reaches of Vasquez Creek and South Boulder Creek (both augmented) can be maintained with increased diversions from the existing Moffat collection system.* **4.) Existing information and the Need for Additional information:** There is limited information on project operational effects to stream hydrology at the project scale (inflow, outflow, and storage) and no information at the suggested time scale of inflow, quantity diverted, and outflow at each diversion. The two scales are important to conduct a cumulative effects assessment of project effects along with site specific assessments of the effects of each diversion to aquatic dependent resources (physical and biological). Existing Information: Some information exists regarding unregulated flow regimes systemwide and instream flow requirements for those stream segments with required flow releases. Much water yield work was done for water supply planning purposes within the past two decades. Some of the major water supply related documents include NEPA work done by the Denver Water Department for the Williams Fork Collection system, such as: Existing information on water availability (not exhaustive): Upper Colorado River basin Study Phase II Final Report (Hydrosphere 2003) Fraser River basin Phase I- Feasibility Study Final report (CH2M Hill 1989) Hydrologic data: Metropolitan Denver Water Supply Systemwide/Site-specific (EIS 1986), Hydrologic Summary for the Williams Fork River Basin (DWD 1975) Other studies have looked at how much water should be retained in streams below diversions in terms of minimum and channel maintenance (flushing) flows. The Colorado Water Conservation Board (CWCB) holds Instream Flow (ISF) water rights on many streams on *National Forest Lands in Colorado.* The CWCB ISF's are generally determined by the R2 Cross method. The Routt National Forest completed a ISF study using R2 Cross methods for the Williams Fork collection system in the late 1970's. In other cases, we have information to quantify the flow volume needed to maintain the physical channel conditions below diversions. Instream flow studies are currently being conducted on 5 streams affected by Moffat Firming: Fraser, Williams Fork, Vasquez, St. Louis and Ranch Creeks pursuant to the Grand County stream management plan. Existing information on instream flows: Grand County Stream Management Plan Phase II (Tetra Tech et. al. 2008) Colorado Water Conservation Board Instream Flow water rights Williams Fork River Instream Flow Determination (Russel and Puffer, Routt National Forest, late 1970's) Page 26 of 55	Project alternatives. The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios: • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 There is no comprehensive source or compilation of information on the hydrology of project affected reaches to assess the effects of project operations to aquatic dependent resources. The Forest Service is primarily interested in project operational effects to the hydrology of the 35 streams with project diversions on or affecting National Forest System Lands (see attached list). A subset of these 35 streams have populations of Colorado cutthroat trout, Regional Forester sensitive fish species, or greenback cutthroat trout, listed as threatened under the Endangered Species Act. Diversions from the West Slope (Williams Fork basin and the Fraser River basin) are transported across the Continental Divide and released into South Boulder Creek. The effects of the large input of West Slope water to the aquatic dependent resources (fish, riparian vegetation, channel morphology, etc.) of South Boulder Creek are unknown and need to be assessed during this proceeding. Understanding project operational effects to the hydrology of South Boulder Creek and the 35 affected stream reaches on the West Slope will provide the Forest Service with the necessary information to determine the need for and type of mitigation necessary for the adequate protection and utilization of *NFS lands* as required under the Federal Power Act and other statutes governing the management of Forest Service administered resources. **5.) NEXUS Between the Study and the Project:** The diversions on 35 West Slope streams are the primary sources of water for Gross Reservoir. Most of the Moffat Collection System diversions are on the Arapaho National Forest in Grand County, Colorado. The Moffat tunnel transports West Slope water under the Continental Divide to South Boulder Creek which flows directly into Gross Reservoir. Therefore, streams on the West Slope are directly connected to the operations of Gross Reservoir. The results of this study will be used to assess changes in streamflow (East Slope supplementation or West Slope depletion) in the affected channels. The results of this study will be used to inform the Forest on the effects of Denver Water operations on forest streams. **6.) Study methodology:** *STUDY AREA* The proposed study area includes most streams diverted into the Moffat Collection System. This includes 31 streams in the Fraser River basin and 4 streams in the Williams Fork River basin, as well as the receiving streams, Vasquez and South Boulder Creek (upstream of Gross Reservoir). ***METHODOLOGY*** Depending on available existing information, several different methodologies may be needed to understand the regulated and unregulated hydrology of these watersheds. The study is to include the following components for unregulated, existing and proposed hydrologic conditions: (a) hydrographs in cubic-feet-per-second (cfs) in a daily time step (inflow, amount diverted, and outflow) for 35 project diversions, Vasquez (augmented portion) and South Boulder Creeks for wet, average, and dry years (based on Berthoud Pass SNOTEL site snow water equivalency on April 1st between 1979-2007) and b) tables showing the rates of inflow, diversion and outflow in cfs at each diversion for wet, average, and dry years. The Page 27 of 55	an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative. ***Comment #738-141*** *(ID 3664)**:*** *Page 4-6, item 1: The decrease in flows in the Fraser River and Williams Fork River basins in average and wet years needs to be specified and compared to existing operations and natural flow conditions.* **Response #738-141:** Please see the response to Comment ID 3663. ***Comment #738-142*** *(ID 3665)**:*** *Page 4-6, item 4: The text describes that discharges from the Moffat Tunnel are capped to limit the flow in South Boulder Creek to 1200 cfs. The capacity of the Moffat Tunnel should be described. The increase in flows (and duration) in South Boulder Creek upstream of the reservoir in average and wet years needs to be specified and compared to existing operations and natural flow conditions.* **Response #738-142:** The capacity of the Moffat Tunnel is 1,360 cfs. FEIS Section 3.1 was revised to include information on the capacity of the Moffat Tunnel. The surface water sections in FEIS Sections 3.1 and 4.1 were revised to provide a discussion of the natural flows in the South Boulder Creek Basin and the increase in flows due to Moffat Tunnel deliveries under Current Conditions, Full Use of the Existing System, and Full Use with a Project Alternative. Therefore, the increase in flows in South Boulder Creek upstream of Gross Reservoir in average and wet years for

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 following years should be evaluated: 1980 for wet (75th percentile), 1991 for average (50th percentile) and 1999 for dry (25th percentile). Historical flow data (reference time series) are needed to conduct additional hydrologic based analyses such as flood frequency and the creation of hydrologic alteration statistics. Project operation and stream gage information within the project area may be available for some affected stream reaches. However, some streams may have insufficient measured information. For these streams, simulated hydrographs can be created using other accepted methodologies. There are three basic approaches to creating the reference time series as listed by Hughes et. al. (1997). • Observed rainfall-runoff time series. • Extrapolation of observed flow records of nearby unregulated watersheds. • Using suitable runoff simulation models. The last two will probably be used the most in this study. Additional references of accepted methodology are: Vogel and Fennessey (1995) and Kircher et al (1985). *Analysis* The results generated in the study should be analyzed in accordance with the approaches developed by Richter et al. (1996, 1997, and 1998). Statistics should be generated that address the 5 groups identified by Richter in the development of the Indicators of Hydrologic Alterations (IHA) analysis. 1. Magnitude of monthly discharge conditions 2. Magnitude and duration of annual extreme discharge conditions 3. Timing of annual extreme discharge conditions 4. Frequency and duration of high and low flow pulses 5. Rate and frequency of hydrograph changes These statistics should be evaluated for the project-affected reaches. In addition, a flood frequency analysis should be performed to predict channel-forming discharges of the diverted streams. *CONSISTENCY WITH GENERALLY ACCEPTED PRACTICE* The proposed study methodology to collate and report existing hydrologic information or create hydrographs at each diversion and for Vasquez & South Boulder Creeks is widely used and accepted in the scientific and engineering communities. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient:** If the information is readily available based on project data, the estimated cost to compile and report the information is about 10 days effort for a GS-11 ($352 per day). Therefore, costs could be as low as $3,520 for existing information. If the data is not readily available and one has to construct simulated hydrographs based on the methods above, the costs could run as high as $26,750 based on government salary rates at the GS-11 and GS-12 levels and about 75-days to conduct the analysis and prepare the report. Staff level | Role | Cost per day | Number of Days | Total Cost GS-11, step 5 | Conduct | $352 | 70 (~ 2 days per | $24,640 Page 28 of 55	each alternative was compared to existing operations (Current Conditions) and natural flow conditions. ***Comment #738-143*** *(ID 3666)**:*** *Page 4-8, Water Quality Section, bullet two: The statement that stream temperature will only be increased in Ranch Creek is false and misleading as other sampling sites not studied may have elevated temperatures during average and wet years because of the reduction in flows from the proposed action(s).* **Response #738-143:** Additional water quality analysis, including temperature, has been performed on the Fraser River. Additional water quality analysis has been performed for the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #738-126*** *(ID 3650)**:*** *Page 4-9, Floodplain Section, bullet two: The decrease in peak flows in the Fraser River and Williams Fork River basins in average and wet years needs to be specified and compared to existing operations and natural flow conditions.* **Response #738-126:** Changes in peak flows with the Project, relative to Current Conditions (2006), are presented in FEIS Section 4.6.1. Changes in peak flows with the Project, relative to Full Use of the Existing System, are presented in "River Segments" subheadings of FEIS Section 5.1. Average annual peak and average of the wet year annual peaks have been specified in the FEIS subsections for the Fraser and Williams Fork rivers. A discussion of natural flow conditions and tables showing the percentage of native flow diverted by

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 analysis / diversion and stream) GS-12, step 5 — Review final report — $422 — 5 — $2,110 Estimated Total Cost — $26,750 **REFERENCES** Hughes, D. A., J. O'Keeffe, V. U. Smakhtin, and J. King. 1997. Development of an operating rule model to simulate time series of reservoir releases for instream flow requirements. Water SA 23:21-30. Richter, B. D., J. V. Baumgartner, D. P. Braun, and J. Powell. 1998. A spatial assessment of hydrologic alterations within a river network. Regulated Rivers: Research & Management 14:329-340. Richter, B. D., J. V. Baumgartner, R. Wiginton, and D. P. Braun. 1997. How much water does a river need? Freshwater Biology 37:231-349. Richter, B. D., J. V. Baumgartner, J. Powell, and D. P. Braun. 1996. A method for assessing hydrologic alteration within ecosystems. Conservation Biology 10:1163-1174. Vogel, R.M., and N.M. Fennessey. 1995. Flow duration curves II: a review of applications in water resources planning. Journal of American Water Resources 31:1029-1039. Kircher, J.E., A.F. Choquette, and B.D. Richter. 1985. Estimation of natural streamflow characteristics in western Colorado. USGS Water Resources Investigations Report 85-4086. USDA Forest Service. 1997. Revision of the Land and Resource Management Plan. Arapaho and Roosevelt National Forests and Pawnee National Grassland, Fort Collins, Colorado. *Forest Service. 2002. White River National Forest land and resource management plan. Department of Agriculture, Glenwood Springs, Colorado. April 2, 2002* *Forest Service. Undated. Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands land and resource management plan. Department of Agricuture, Pueblo, Colorado.* **Attachment A- Study stream list** **Diverted Streams** **I. Fraser basin Collection System (31 creeks)** Page 29 of 55	Denver Water under Current Conditions (2006), Full Use of the Existing System, and Full Use with a Project Alternative (2032) were added to FEIS Sections 3.1 and 4.6.1 and Appendix H. ***Comment #738-127*** *(ID 3651)**:*** *Page 4-9, Stream Morphology and Sedimentation, bullet one: C. Transport Capacity, Sediment Supply, and Effective Discharge: The relations between transport capacity and sediment supply are poorly described. The premise that the morphology of a channel will not change because transport capacity is considerably greater than sediment supply from the proposed flow changes is incorrect. Existing channel morphology reflects that it is in balance or in dynamic equilibrium with the current flow and sediment regime. Just because transport capacity remains greater than sediment supply when peak flows are reduced during average and wet years does not necessarily indicate morphological channel changes will be minimal to the proposed action. Reducing the frequency of effective discharge and annual transport capacity will eliminate or reduce Phase 2 sediment transport, which is critical for creating and maintaining channel form. The elimination of frequent, moderate flood events in the proposed action, which are generally considered to determine channel dimensions and form, can cause pools to become shallower as they fill with sediment and channels to gradually narrow as riparian vegetation becomes established along the channel margins (which will be more apparent and likely in low gradient, unconfined channels). Infrequent, large floods during wet water years may be unable to remove the established vegetation. Frequent, moderate floods are necessary to prevent fine sediments from infilling pools and colonization of riparian vegetation along channel margins. At several of the sampling sites sand deposition was observed and considered an indicator of potential*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 West Side (from west to east towards Moffat Tunnel): 1. Mainstem St. Louis Creek 2. Iron Creek 3. Byers Creek 4. Short Creek 5. West St. Louis Creek 6. East St. Louis Creek 7. Fool Creek 8. King Creek 9. West Elk Creek 10. West Fork Main Elk Creek 11. Main Elk Creek 12. East Elk Creek 13. Vasquez Creek 14. Little Vasquez Creek East Side (from south to north towards Ranch Creek): 15. Mainstem Fraser River 16. Jim Creek 17. Buck Creek 18. Cub Creek 19. Wolverine 20. South Fork Ranch Creek 21. Middle Fork Ranch Creek 22. Ranch Creek 23. Dribble Creek 24. North Fork Ranch Creek Cabin-Meadow extension of East Side (from North Fork Ranch Creek to Meadow Creek): 25. Little Cabin Creek 26. Cabin Creek 27. Hamilton Creek 28. Hurd Creek 29. South Trail Creek 30. North Trail Creek 31. Meadow Creek **II. Williams Fork Collection System (4 creeks)** South Side (from south to north): 32. Bobtail Creek Page 30 of 55	*aggradation (see sampling site descriptions in section 3.1.6.1 and 3.1.6.2). The proposed reduction in peak flows during average and wet water years will exacerbate sand/fine gravel deposition and channel aggradation.* **Response #738-127:** A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results are provided in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic data as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. ***Comment #738-129*** *(ID 3652)**:*** *The study design to assess the impacts of changes in sediment transport capacity on channel morphology is not well described in the DEIS. Some of the concerns with the analyses and interpretations are: 1) Sediment supply estimates from the Two Forks EIS (Simons and Associates, 1986) are not justified. If the sediment supply equations from the Two Forks EIS are to be used in this DEIS, the relevant assumptions, channel geometry, sediment transport data, and results from that study should be provided in this DEIS. One cannot objectively evaluate how the sediment supply data and results from the Two Forks EIS apply to this study or if the sediment supply equations drawn from the Two Forks EIS were appropriately applied here. 2) What is important from a channel morphology perspective is how the mobilization of D50 and greater size particles are effected by flow alterations (Phase 2 sediment transport). Reducing the frequency of Phase 2 sediment transport could have an adverse effect on channel morphology. 3) Transport capacity*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 33. Steelman Creek North Side (from south to north): 34. McQuery Creek 35. Jones Creek **Augmented Streams** 1. Vasquez Creek 2. South Boulder Creek Page 31 of 55	*needs to be assessed at discrete particle size intervals. No data were provided for the transport capacity of discrete particle size intervals at different flows (total load only presented). 4) The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, mountain channels composed of gravels, cobbles, and boulders. Channel beds are considerably coarser and steeper than the studies used to develop that equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate. 5) Field data were not collected to "calibrate" the quantity and size of bedload being transported at different discharges. 6) Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an appropriate bedload transport equation is used. As such, results from such studies should be used with caution when predicting potential channel responses.* **Response #738-129:** Supply equations were generated based on extensive field collected data. Additional information on the derivation of the sediment supply estimates has been provided in FEIS Section 4.6.3. A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results are provided in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic data as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 6** **Title of Proposed Study:** Aquatic, Riparian and Wetland Habitat Loss due to Inundation. **1.) Goals, Objectives and Information to be Obtained:** The Forest Service (Forest) is concerned about losing stream, riparian and wetland resources to rising reservoir waters if the proposal is approved. The goal of the "inundation" study is to inventory aquatic, riparian, and wetland resources on Forest lands within the proposed reservoir enlargement area. Study objectives include measurement, classification and mapping of A) stream habitat B) riparian vegetation communities and C) wetlands (riparian and isolated) that are proposed for inundation. For each resource listed in A-C, the Forest asks for detailed classifications of habitat and/or vegetation communities and the area of each class proposed for submergence under the expanded reservoir. Information to be obtained from this study includes the location, type, and area of Forest stream habitat, riparian vegetation and wetlands proposed for inundation by an enlarged Gross Reservoir. **2.) Relevant Forest Resource Management Goals:** The following resource management goals were taken from the 1997 revision of the Arapaho-Roosevelt National Forests and Pawnee National Grasslands Land and Resource Management Plan (LRMP). Design criteria for the LRMP standards come from the Region 2 Watershed Conservation Practices Handbook or WCPH (Forest Service Handbook 2509.25-2006-2). Operational Goals, Standards and Guidelines for physical resources: Standard 7 (WCPH Management Measure 3)- In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition. WCPH Design Criteria- Allow no action that will cause long-term change to a lower stream health class in any stream reach. Allow no action that will cause long-term change away from desired condition in any riparian or wetland vegetation community. Standard 10 (WCPH Management Measure 5)- Conduct actions so that stream pattern, geometry, and habitats maintain or improve long-term stream health. Page 32 of 55	***Comment #738-135*** *(ID 3653)**:*** *Assumptions Used to Model Flow Hydraulics and Transport Capacity in HEC-RAS: The assumptions used to model flow hydraulics and transport capacity using HEC-RAS were not presented. The general limitations of HEC-RAS to model flows and transport capacity in steep, forested, mountainous channels were not discussed. The limitations of using flow hydraulics and transport capacity output from HEC-RAS to assess channel impacts and responses to flow alteration were not discussed. Prediction of sediment mobility and transport volumes are notoriously difficult, and in most cases inaccuracies can be by orders of magnitude even when an appropriate bedload transport equation is used (the Meyer-Peter Müller equation was not an appropriate choice). Sediment sampling data should be used to calibrate sediment transport equations. Whenever possible, the use of measured sediment loads for testing and calibration of the equations is preferred. Additionally, because pebble counts tend to be biased towards larger particle sizes and underestimate the presence of smaller size fractions in the channel bed, not collecting subsurface data as was done in this study will further reduce the accuracy of sediment transport capacity estimates. Need to illustrate the flow scenarios to the proposed action on cross sections to illustrate how water-surface elevations relate to existing morphological features. Water surface elevations of the natural flow regime and the existing flow regime should be illustrated on the cross sections as well so that the changes can be visually compared.* **Response #738-135:** A discussion was added to the FEIS describing HEC-RAS in FEIS Section 4.6.3. Limitations of using numeric modeling to assess channel impacts were discussed. Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Results are provided in FEIS

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Standard 11 (WCPH Management Measure 6)- Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetlands to sustain their ecological function. WCPH Design Criteria- Avoid any loss of rare wetlands such as fens and springs. Avoid long-term reduction in organic ground cover and organic soil layers in any wetland (including peat in fens). Standard 12 (WCPH Management Measure 7)- Cooperate with state, tribal and local governments and holders of water rights to manage water resources to minimize damage to scenic and aesthetic values, fish and wildlife habitat, and to otherwise protect the environment. WCPH Design Criteria- Cooperate with water users and other interested parties to evaluate how to operate existing water use facilities to meet resource goals. The Forest Service Manual (FSM 2526) directs the Forest to, "Delineate and evaluate riparian areas prior to implementing any project activity. Determine geographic boundaries of riparian areas by onsite characteristics of water, soil, and vegetation". It provides further direction to, "Give special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes, and other bodies of water. This distance shall correspond to at least the recognizable area dominated by the riparian vegetation (36 CFR 219.27e). Give special attention to adjacent terrestrial areas to ensure adequate protection for the riparian-dependent resources". The Forest Service Manual (FSM 2527) directs the Forest to, "Analyze proposed actions affecting floodplains or involving new construction in wetlands to assess the specific flood hazards; quantify floodplain or wetland values of the areas; determine the impacts of the proposal on those hazards and values; formulate and evaluate land and resource management options; come up with a practicable alternative action or location; and determine whether the "no action" option is practicable". Further direction is provided to "Modify plans, activities, and designs to minimize impacts of the action and to mitigate its effects on the natural and beneficial values of the floodplain or wetland in all actions where an alternative to an action in or affecting the floodplain or new construction in a wetland is not practicable". **4.) Existing Information and the Need for Additional Information**: There is limited information on the extent and types of stream, riparian and wetland habitat that would be lost to inundation. The information is important to determine the loss of stream, riparian and wetland habitat from Forest lands that will be incurred if Gross Reservoir is enlarged. A) Stream habitat- Existing information regarding stream habitat includes Colorado Division of Wildlife (CDOW) surveys from 1998 on South Boulder, Winiger and Forsythe Canyon creeks. The CDOW surveys contain qualitative information on stream habitat and fish abundance estimates. Page 33 of 55	Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic photos as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. HEC-RAS results, including changes in water surface elevations and inundated areas, for each EIS alternative compared to Current Conditions and Full Use of the Existing System are provided in FEIS Sections 4.6.8 and 5.8. This information was presented in tables as opposed to figures as requested in the comment. Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. ***Comment #738-136*** *(ID 3654)**:*** *Page 4-9, Stream Morphology and Sedimentation, bullet two: "However, for the range of flows expected, sediment transport capacity exceeds available sediment supply and, for all but the smallest flows, sediment transport capacity is orders of magnitude greater than available sediment supply." This statement does not accurately reflect conditions on the ground. It would seem that if sediment transport capacity was orders of magnitude greater than sediment supply, streams should be actively incising. That is, streams should be seeking sediment to transport by eroding their beds and banks. However, on the ground inspection indicates that the only streams that are incising or have incised are those that have been subject to augmented flows, South Boulder Creek and sections of Vasquez Creek. "All alternatives would result in*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 B) Riparian vegetation communities - At least one research paper has been published that included information on riparian communities along South Boulder Creek above and below Gross Reservoir. • Merritt, D. M., and E. E. Wohl. 2006. Plant dispersal along rivers fragmented by dams. River Research and Applications 22:1-26. C) Wetlands- The US Fish and Wildlife Service National Wetlands Inventory (NWI) may have information on wetlands around Gross Reservoir. The NWI website "wetlands mapper" shows the area around Gross Reservoir as a non-digital inventory, with wetland data available by hardcopy only (http://www.fws.gov/wetlands/). United States Geological Survey 1:24,000 scale topographic quadrangles may have general delineations of wet zones in the study area as well. **5.) NEXUS Between The Study And The Project**: The study will examine areas that would be inundated by an enlarged Gross Reservoir, so the study would be directly connected to the effects of the project. The results of this study will be used to inform the Forest the loss of stream, riparian and wetland habitats on National Forest lands. **6.) Study Methodology**: A) STREAM HABITAT A hierarchical based approach developed by Hawkins et al. (1993) will be used to assist in the identification of individual habitat units in the field. At the broadest level, Level I categorizes habitats as "fast water" and "slow water". Level II fast water is subdivided into two categories: turbulent and non-turbulent; slow water is also subdivided into two categories: scour pool and dammed pool. Level III categories are those categories that further describe the slow and fast water units. Figure 1 shows the relationship between the three levels (see Figure 1). Habitat mapping will be conducted by a pair of fishery biologists working as team. The drainages to be included in the habitat mapping study are: South Boulder Creek on Forest land upstream of reservoir, Winiger Gulch, and Forsythe Canyon. Each drainage will be mapped working in an upstream direction where possible. Data will be recorded onto standardized datasheets. Aquatic habitats will be visually delineated based on the framework provided by Hawkins et al. (1993) and McCain et al. (1990); each habitat unit will be uniquely identified. They will be identified at the finest scale (i.e. Level III) and recorded. All aquatic habitats identified will be spatially referenced using a combination of a GPS (UTM, WGS 84 datum) and hip chain methodology. Other parameters recorded for each aquatic habitat will include: mean width, mean depth, maximum depth, substrate composition (including spawning gravel characterization), riparian vegetation, woody debris, and cover. Page 34 of 55	*changes in flow during average and wet conditions and then primarily during the wettest months of the year; therefore, reductions in sediment transport capacity resulting from the alternatives are expected to have negligible impacts on channel morphology." This assertion is counter-intuitive. Frequent high flows, with recurrence intervals of 2-10 years are the flows that transport the most sediment (e.g. effective discharge). These are the flows that occur during the runoff months, particularly on average or wet years. It would appear that reduction of these flows would have the greatest impact on morphology, not negligible impact as is stated in the document.* **Response #738-136:** Sediment transport capacity can exceeds sediment supply without incision. This situation often occurs in stream with armored beds and banks. An additional detailed sediment sampling and modeling site was established on Vasquez Creek upstream of Denver Water's Diversion point to evaluate whether this area is showing signs of instability. The statement in the DEIS "All alternatives would result in changes in flow during average and wet conditions and then primarily during the wettest months of the year; therefore, reductions in sediment transport capacity resulting from the alternatives are expected to have negligible impacts on channel morphology" indicates that reductions of these peak flows are not expected to result in aggradation. This conclusion was further evaluated in the FEIS through an analysis of historic aerial photos and different streams' responses to past flow depletions. Analyses of the existing systems are provided in FEIS Section 4.6.3. ***Comment #738-128** (ID 3655)**:*** *Page 4-9, Stream Morphology and Sedimentation, bullet three: "Locations along the Fraser River where traction sand currently increases the natural*

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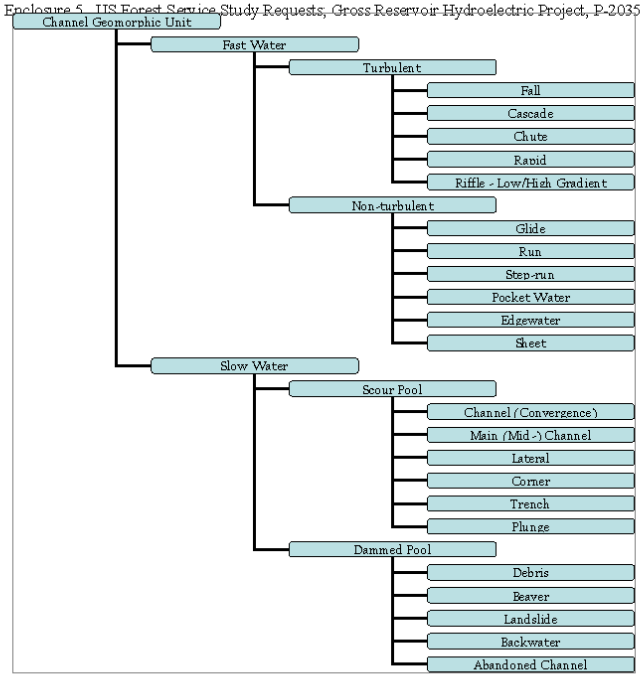
	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035  Figure 1. Three-tiered habitat mapping classification system adapted from Hawkins et al. (1993) and McCain et al. (1990). During the habitat mapping, the location of spawning gravel deposits will be mapped using a GPS. The length and width of each spawning gravel deposit will be measured to the nearest tenth of a foot following the approach provided by Johnson and Kier (1998). Describing and measuring each habitat type is labor intensive; an average of 0.75 miles can be covered each day by trained surveyors. Page 35 of 55	*sediment supply are and would remain the most susceptible to local deposition. Any deposition that occurs should be limited in extent and magnitude and should pose only minor changes to channel morphology." Show how the conclusions of the stream morphology assessment were considered in the assessment of fish and aquatic life. Show how "local deposition" affects fish and aquatic habitat in these locations.* **Response #738-128:** An additional sediment sampling and transport modeling site was added on the Fraser River to better understand impacts of traction sand. Historic responses of the Fraser River were also completed using aerial photographs, gaging data and channel cross section to evaluate past impacts. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes considering traction sand are provided in FEIS Sections 4.6.3 and 5.3. A discussion of the effects of flushing flows on aquatic resources was included in the DEIS and an expanded discussion is included in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #738-130** (ID 3656):* *Page 4-9, Stream Morphology and Sedimentation, bullet four: This statement is incorrect. Flow would increase in Vasquez Creek downstream of the Gumlick Tunnel outflow. There is no discussion of the potential impacts of increased flow on channel morphology along Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek.* **Response #738-130:** A sampling and sediment modeling location was

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 ***Stream Habitat Analysis*** All habitat data (including spatial referencing) will be entered into a spreadsheet and will be quality checked. Once the data is cleared, it will be entered into a database. The database format will allow the user to query specific information on a number of scenarios. The relative abundance of each habitat unit will be used to determine the potential changes in stream habitat availability caused by inundation. **Consistency with generally accepted practice** Habitat classification and inventories are a common approach in determining the availability and importance of certain habitats to fish. The hierarchical based approach is widely used and applied in mountain streams. B) **Riparian Vegetation Communities** The study is to include the following components: (1) delineation of riparian areas that would be inundated by reservoir enlargement, using inundated channel length and regularly spaced transects, perpendicular to the channel, to estimate riparian width, and (2) riparian vegetation plots within the area proposed for inundation to classify the riparian plant communities. Aerial photography is often used to delineate aerial extent of riparian areas. However, the riparian zones along South Boulder Creek and other tributaries to Gross Reservoir are narrow and much of the riparian vegetation occurs as an understory to coniferous forest. Therefore, riparian width along the reach will be estimated using systematically placed transects oriented perpendicular to the channel, extending across the width of the riparian zone on either side of the channel. Transects should be located along the entire reach to be inundated (main channel and tributaries). Transect should be systematically placed from the upstream extent of the proposed inundated area along South Boulder Creek and tributaries every 50 meters down the channel to the current termination of the South Boulder Creek in Gross Reservoir (e.g., 40 transects in 2 km of inundated stream). Vegetation should be measured in 1x2m plots positioned systematically along selected channel cross sections within the study area. At least 6 vegetation plots should be located systematically (at set intervals) along the transect length within the riparian zone: plot nearest that channel along the lowest extent of perennial vegetation. Percent cover of all vascular plant species should be measured in each plot. Estimates of cover should be made using cover-classes (e.g., Braun-Blanquet cover-class sclale; Mueller-Dombois and Ellenberg 1974). Riparian areas should be categorized into coarse plant physiognomic classes (e.g., herbaceous-gramminoid meadow, shrubland, deciduous forested, and coniferous forested). Total length of each physiognomic class should be measured along each transect. Average length along transects occupied by each physiognomic class should then be converted to proportions and area of each physiognomic class along the entire reach estimated. Total riparian area of the proposed Page 36 of 55	added on Vasquez Creek downstream of the Gumlick Tunnel outflow to evaluate stability and channel morphology. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-131*** *(ID 3657)**:*** *Page 4-10, Description of the Model: We are not familiar with the DW's Platte and Colorado Simulation Model (PACSM). The assumptions and limitations of the model should be reviewed and evaluated to its application to the proposed project.* **Response #738-131:** An independent review of PACSM was conducted for the Moffat Project EIS, which concluded that PACSM is adequate for the modeling purposes of this EIS and can be relied on to provide hydrologic information (Boyle Engineering 2003a, 2004). The assumptions, input, operations, and results of PACSM were reviewed and verified by the Corps' third-party contractor as documented in the technical memoranda, Summary of Phase I-Task 3, Moffat Collection System Project EIS (Boyle 2003b), Review of PACSM Modifications (Boyle 2004), Review of Lower South Platte River Extension in PACSM (Boyle 2006a), and Review of Modifications Made to PACSM to Reflect the Baseline Scenario and EIS Alternatives (Boyle 2006b). As a component of the UPCO, an additional independent review of PACSM was conducted. That review concluded that the model adequately simulates the hydrology, major water rights and the operations of major water storage and diversion projects within the Colorado River Basin for the purpose of that multi-agency study which addresses long-range water supply planning for numerous

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 inundated area should be calculated. The boundary of the riparian zone should be recorded using geographic positioning systems (GPS) and projected using geographic information systems (GIS). ***Riparian Vegetation Study Area*** The proposed study area includes the length of South Boulder Creek that would be inundated by the enlarged reservoir. It would also include other Forest Service tributaries to Gross Reservoir that would be inundated such as Winiger Gulch and Forsythe Canyon. Perennial, intermittent, and ephemeral tributaries that support riparian vegetation would be included. ***Riparian Vegetation Analysis*** Vegetation plots should be classified into plant associations using conventional methods. One such method is to utilize the dichotomous key to the wetlands and riparian plant associations of Colorado in Carsey et al. (2003). Once all plots are classified into one of the associations in this guide, an assessment of frequency of various plant associations within each physiognomic class can be determined. When combined with the global and state ranks of conservation status, assessments may be made of the following: 1) the types of plant associations and associated habitat lost due to inundation, 2) the species composition and species richness of those associations, 3) the occurrence and frequency of rare and listed species, as well as other species of interest, 4) an approximation of the proportions of each physiognomic class occupied by each plant association, and 5) an assessment of the aerial loss of plant associations and their conservation status. Data to be provided to the Forest Service: Cross-section end points and plot locations (recorded using global positioning system (GPS)) including a GIS cpverage (e.g. shapefile or geodatabase), a spreadsheet matrix of percent cover of each species in each plot, plant associations that each plot was classified into, percent length of each cross section falling into each physiognomic class, and a detailed description of methods used to locate cross sections and plots along cross sections **Consistency with generally accepted practice** Inventories are a common approach in determining the amounts and composition of riparian habitats. The proposed vegetation classification is commonly used and is based upon published works. C) **Wetlands** The study is to include the following components: (1) Inventory of wetlands that would be inundated by reservoir enlargement, using aerial photography and/or field surveys along the entire the entire length of canyon proposed for inundation and within the proposed inundation area, followed by 2) Wetland determination from data collected on vegetation (plots), hydrology and soil (soil pits) within the wetland area 3) wetland classification following Cowardin et al 1979 and 4) jurisdictional determination. It is recognized that there is overlap between the riparian vegetation and wetland studies. It is the intention of the wetland study to identify and classify both riparian and non-riparian wetlands. Page 37 of 55	West Slope entities in Grand and Summit Counties (UPCO PACSM Review Committee 1999). ***Comment #738-147*** *(ID 3673)**:*** *Page 4-15, Sampling Sites: The process used to select sampling sites is not explained (See comment A). Because more sensitive reaches (pool-riffle channels or Rosgen C type channels) and steep tributary reaches are underrepresented in the list of sampling sites, the analysis and conclusions drawn are incomplete. Since more sensitive reaches are underrepresented and more likely to undergo morphological change to the proposed flow changes, the selection of sampling sites (pool-riffle channels or Rosgen C type channel) appears to be biased. If the Two Forks EIS is used to draw conclusions for this project, the relevant assumptions, data, and results used in that study should be provided in this EIS. One cannot objectively evaluate how the data and results from the Two Forks EIS apply to this study or if the conclusions from the Two Forks EIS were appropriately applied here. In other words, the extrapolation and use of the conclusions from the Two Forks EIS to this study is not reasonable based on the information provided.* **Response #738-147:** Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. Historic photographs were also evaluated to provide additional insight to past and current stream conditions. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 ***WETLAND STUDY AREA*** The study area is any Forest land between the current and proposed high water line of Gross Reservoir subject to inundation. ***WETLAND ANALYSIS*** 1) Location of wetlands The entire length of South Boulder Creek and tributaries should be walked by at least two observers. The observers should inspect the entire valley bottom from the creek (valley low point) to the elevation of the proposed future reservoir level. Any wetlands should be recorded using GPS. Aerial photography is often used to delineate wetland areas. However, the wetlands around Gross Reservoir may be too small to identify from air photos and, a ground survey would be more suitable. Air may be useful to initially identify location of some wetlands, and could be used to supplement, but not replace ground surveys. If air photos are reviewed to identify wetland areas, use the largest-scale, most recent color or color infrared stereopairs available, but no smaller than 1:24,000 scale 2) Wetland determination, delineation and mapping In the field, complete the "data form for routine wetland determination" which is Appendix B in the Army Corps of Engineers (Corps) Wetlands Delineation manual (Corps of Engineers 1987). Collect data on wetland parameters of vegetation, hydrology and soils. A site is determined to be a wetland if at least one positive indicator of each wetland parameter is observed (i.e. hydrophytic vegetation or hydric soils etc.). If the site is determined to be a wetland, then delineate the wetland perimeter, measure the wetlands dimensions (if practical) with a measuring tape and map using high precision GPS capable of sub-meter accuracy. Take photos of representative vegetation and any soil pits. 3) Jurisdictional determination Wetlands within the inundated area may be jurisdictional or non-jurisdictional. Receive jurisdictional determinations for each wetland from the Corps and include jurisdictional determination for each wetland into the final wetland report. 4) Vegetation measurements Vegetation plots should be established within each wetland identified at a concentration of one 0.5mx0.5m vegetation plot per $25m^2$ or no fewer than three plots per wetland. Plots should be located within each wetland using randomly selected x-y coordinates that fall within the wetland boundary. Percent cover of all vascular plant species should be measured in each plot. Estimates of cover can be made using cover-classes (e.g., Braun-Blanquet cover-class sclale; Mueller-Dombois and Ellenberg 1974). Plant associations should be classified using Carsey et al. (2003). 5) Detailed report Prepare a report on the location, area and classification of each type of wetland proposed for inundation including maps and photos of each wetland. Include data forms used in wetland Page 38 of 55	and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-151*** *(ID 3674)**:*** *Page 4-16, Hydraulic Modeling and Sediment Transport Capacity: Relevant hydraulic modeling and sediment transport capacity results from the HEC-RAS modeling performed by ERC (2006) should be included in the EIS so that those data can be evaluated independently. Moreover, the relevant assumptions and input data used for modeling flow hydraulics and transport capacity should be provided so that the use of the model can be objectively evaluated. The Meyer-Peter Müller equation is inappropriate for estimating bedload transport in steep, forested, mountain channels. Channel beds in the project area are considerably coarser than the particle size limits used to develop the equation. Other bedload transport equations that use field data to calibrate the bedload transport model to the site would be more appropriate.* **Response #738-151:** Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport were completed. Results are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-152*** *(ID 3675)**:*** *Page 4-17, Hydraulic Modeling and Sediment Transport Capacity: Fractional transport capacities for all grain sizes should be presented so that the mobilization of coarser particles (those greater than the D50 percentile particle size) can be evaluated for*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 determinations in the report. Plant associations represented should be listed along with a frequency of occurrence and global and state conservation status rankings. Total delineated wetland area should be provided. Total area of wetland types (Cowardin et al. 1979) should also be provided. All vegetation inventory data will also be provided to the Forest. **Consistency with generally accepted practice** The Corps wetland delineation procedure is a common approach used for identifying wetland habitats. The proposed wetland classification system is commonly used and is based upon published works. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient**: A) Stream Habitat There are approximately 2.1 stream miles to be included in the mapping study. A team of two trained fishery biologists (a combination of GS-9 and GS-11) would be able to map 2.1 miles of stream in approximately 2.5 days. This estimate is based on the general salary of both a GS-9 and GS-11 at different step levels. The estimate for the total number of days includes both the field data collection as well as the data entry. Staff Level | Cost Per Day | Number of Days | Total Cost GS-9, step 1 | $232 | 15 | $3480 GS-11, step 5 | $352 | 10 | $ 3520 | | Total Estimated Cost | $ 7000 B) Riparian Vegetation Communities Staff Level | Cost Per Day | Number of Days | Total Cost GS-9, step 1 | $232 | 10 | $2328 GS-11, step 5 | $352 | 20 | $ 7040 | | Total Estimated Cost | $ 9368 C) Wetlands The level of effort and cost for the wetland inventory is directly related to the number and size of wetlands existing in the study area. Most likely, the Corps is already aware of the location, area and types of wetlands at risk but in the absence of such information, an air photo review of the study area could be completed in 2 days. A field team consisting of a soil scientist and a botanist (both GS-11 grade) would be able to make approximately two wetland determinations and maps per day. Another 2-day field review with the Corps may be needed for jurisdictional determinations. A final report could be completed in two days. Assuming 10 wetlands of < 1-acre area each are located via air photos and investigated in the field, including a 2-day Corps field review, the wetland study could take approximately 20 person-days at $352 per day or $7040. Page 39 of 55	*different discharges and flow alteration scenarios. By only reporting the total bedload transport capacity, the movement of the coarser particles, which is important for controlling channel form and processes in steep, coarse-bed channels, cannot be evaluated to assess how its mobilization will be impacted. The particle size break between phase 1 and phase 2 transport is not necessarily 4 mm. The basis for choosing the 4 mm particle size break needs to be explained and supported based on field data. The relevance of of using the 4 mm (fine gravel) particle to determine a threshold discharge is unclear. Flow alterations that reduce flow will change flow patterns associated with the complex bed topography in steep mountainous channels, change fine gravel and sand deposition patterns, and cause deposition in pools.* **Response #738-152:** Additional assessments including sensitivity analysis of sediment supply and sediment transport equations, and a Phase 2 sediment transport analysis were completed. Results are provided in FEIS Sections 4.6.3 and 5.3. Additional information was added to FEIS Section 4.6.3 discussing relevant research pertaining to channel responses to diversions, effective discharge and use of various equations for sediment transport modeling. ***Comment #738-134*** *(ID 3793)**:*** *Page 4-18, Sediment Supply: What is the standard error associated with the sediment supply equations listed in Table 4.1-1.* **Response #738-134:** Sediment supply equations were derived based on detailed sediment sampling completed in the area for the Two Forks project. Additional information on

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 Staff Level: GS-11, step 5; Cost Per Day: $352; Number of Days: 20; Total Cost: $ 7040 Total Estimated Cost: $ 7040 References Stream Habitat Hawkins, C. P., J. L Kershner, P. A. Bisson, M. D. Bryant, L. M. Decker, S. V. Gregory, D. A. McCullough, C. K. Overton, G. H. Reeves. R. J. Steedman, and M. K. Young. 1993. A hierarchical approach to classifying habitats in small streams. Fisheries. 18(6): 3-12. Johnson, J. and W. Kier. 1998. A preliminary assessment of the salmon habitat potential of Butte Creek, a tributary of the Sacramento River, between Butte Head Dam and the Centerville Diversion Dam, Butte County, California. Prepared for Institute for Fisheries Resources, San Francisco, CA by William M. Kier Associates, Sausalito, CA. January 1998. McCain, M., D. Fuller, L. Decker, and K. Overton. 1990. Stream habitat classification and inventory procedures for northern California. FHR Currents: R-5's fish habitat relationships technical bulletin, No. 1. U.S. Forest Service, Pacific Southwest Region, Arcata, CA. Riparian Vegetation Carsey, K., G. Kittel, K. Decker, D.J. Cooper, and D. Culver. 2003. Field Guide to Wetland and Riparian Plant Associations of Colorado. Colorado Natural Heritage Program, College of Natural Resources, Colorado State University, Fort Collins, CO. Mueller-Dombois, D. and H. Ellenberg. 1974. Aims and Methods of Vegetation Ecology. John Wiley & Sons, New York. Merritt, D.M and E.E. Wohl. 2006. Plant Dispersal along Rivers Fragmented by Dams. River Research and Applications volume 22, pp. 1-26. Wetlands Corps of Engineers, 1987. Wetlands Delineation Manual. Wetlands Research program Technical Report Y-87-1. US Army Corps of Engineers Waterways Experiment Station. Cowardin, L. M., Carter, V., Golet, F. C. and LaRoe, E. T. 1979. Classification of wetlands and deepwater habitats of the United States. Performed for the US Department of the Interior Fish and Wildlife Service, Office of Biological Services. FWS/OBS-79/31, Washington D.C. 20240. Page 40 of 55	the derivation of the equation is provided in the FEIS. Standard error calculations are not available, however, a sensitivity analysis of sediment supply was completed and is provided in FEIS Section 4.6.3. ***Comment #738-180*** *(ID 3794)**:*** *Page 4-19, Effective Discharge: Provide references to studies that support the statement "However, particularly in sediment-limited systems, changes to effective discharge do not necessarily correspond to changes in channel morphology."* **Response #738-180:** A section was added to the FEIS discussing relevant research pertaining to channel responses to diversions, effective discharge and use of various equations for sediment transport modeling. This information has been added to FEIS Section 4.6.3. ***Comment #738-181*** *(ID 3795)**:*** *Page 4-20, Effective Discharge: Because the Meyer-Peter Müller equation was used to calculate bedload transport capacity and its limitations in steep gravel-, cobble-, and boulder- bed channels, effective discharge results and conclusions with regard to channel impacts are of questionable validity.* **Response #738-181:** Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport were completed. Results are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-182*** *(ID 3796)**:*** *Page 4-20, Impacts Analysis: The statement, "In mountain streams, sediment transport capacity typically greatly exceeds sediment supply and as a result sediment entering the system is transported*

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	Enclosure 5. US Forest Service Study Requests; Gross Reservoir Hydroelectric Project, P-2035 **Gross Reservoir Project Study Request No. 7** **Title of Proposed Study:** Denver Water FERC Amendment for Gross Reservoir, Roosevelt National Forest, Project Area Sensitive and Rare Plant Survey **1.) Goals, Objectives and Information to be Obtained:** The following is a process to complete sensitive plant surveys for the project area. The objective of this process is to make sure that presence of rare plants and plant communities, and the effects of disturbance on and mitigation for rare plants and plant communities, can be determined in the most efficient manner and is performed to adequate industry standards. "Rare plants" for this study is defined as comprising 1) plants listed or proposed for listing under the Endangered Species Act, 2) the most current Forest Service Region 2 list of Sensitive Plants, and 3) all other rare Plants of Local Concern, all three groups of which are as identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area (e.g., riparian plants potentially impacted by downstream water depletions or changes in reservoir/downstream hydrology flow rates, levels, or timing; rare plants occupying off-site borrow pits; etc.). "Rare plant communities" include those identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area. Note that these definitions do not necessarily include plants that are otherwise tracked by the Colorado Natural Heritage Program. The most current lists of rare plants and communities to survey must be derived in concert with the Forest. **2.) Relevant Forest Service Resource Management Goals:** *National Forests affected by the project have* goals to maintain viable populations of all native and desirable non-native plants and plant communities. When feasible, the Forest attempts to avoid or minimize impacts to rare plants or communities resulting from management actions. Management options that could cause local extirpation of rare plants or communities are generally avoided. The Forest Service has specific policy direction regarding Sensitive species, including: • Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions. • Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. • Develop and implement management objectives for populations and/or habitat of Sensitive species (Forest Service Manual 2670.22). • Assist States in achieving their goals for conservation of endemic species. • As part of the National Environmental Policy Act process, review programs and activities, through a Biological Evaluation (BE), to determine their potential effect on Sensitive species. On this Forest, a Specialist's Report also assesses impacts to all pertinent listed and proposed species via a Biological Assessment (BA) as part of the specialist's report or as a stand-alone document, as well as to all other pertinent rare plants and plant communities that are not Sensitive. • Avoid or minimize impacts to species whose viability has been identified as a concern. • If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole. (The Page 41 of 55	*out of the system; deposition does not occur.", is incorrect. Deposition does occur. Reach descriptions for the Fraser River and Williams Fork River sampling sites discuss sand and fine gravel deposition and it being a potential indicator of aggradation. It is likely that sand and fine gravel deposition will be exacerbated under the proposed action as increased diversions in average and wet water years will further reduce peak flows that are already limited by existing operations.* **Response #738-182:** The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic data, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. Note that observation of fine material at finite times, particularly during low flows are not necessarily indicators that a stream is aggrading. ***Comment #738-183*** *(ID 3797)**:*** *Page 4-21, Impacts Analysis: The third bullet (increase in transport capacity when transport capacity exceeds sediment supply) applies to Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek. This impact needs to be assessed.* **Response #738-183:** A discussion of flow changes along Vasquez Creek between the Gumlick Tunnel and Denver Water's

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	Enclosure 5. US Forest Service Study Requests; Gross Reservoir Hydroelectric Project, P-2035 Forest Service line officer, with project approval authority, makes the decision to allow or disallow impact, but the decision generally must not result in loss of species viability or create significant trends toward Federal listing.) • Establish management objectives in cooperation with the States when projects on National Forest System lands may have a significant effect on Sensitive species population numbers or distributions. Establish objectives for Federal candidate species, in cooperation with the FWS or NMFS and the States (Forest Service Manual 2670.32). **4.) Existing Information and the Need for Additional information:** A rare plant survey was conducted in the Gross Reservoir area in June, July and August, 2001 (Brune 2001, Shapins Associates 2002). The survey was conducted to identify rare plants and plant associations that could be impacted by implementation of the *Recreation Management Plan* or by power lines associated with Denver Water's Gross Reservoir Hydroelectric Project, FERC Project Number 2035-006. The survey found no listed plants, one Sensitive plant, five rare plants of Local Concern, and one rare "plant association". Although the survey was substantial, it and the 2002 report are inadequate to meet assessment needs and plant protection formulation for the proposed re-licensing project associated with this study request. Although the 2001 report has not been made available to the Forest for review, the 2002 report did not address all listed, Sensitive and rare Plants of Concern to the Forest, and no list of target rare plants and communities was disclosed. There are numerous rare plant species and communities of concern to the Forest that were not surveyed. For example, numerous new species have been added to the rare plant list since 2001, and Forest notes accompanying the 2002 report indicate that potentially-occurring rare willows, including Sensitive species, were not considered in the original survey. Also, it is likely that the 2001 effort may not have surveyed all areas that could be impacted by the proposed project under consideration for this study request as it focused only on areas potentially impacted by the *Recreation Management Plan* and related activities. The survey did not survey for rare plants did not occur for all riparian areas within this project area, but it that may not be necessary, depending upon re-licensing scope. Shortcomings or information gaps in survey methods and results, as well as recommendations for resurveys, were not identified in the 2002 report. Shapins Associates (2002) states that all rare plant sites encountered could be avoided for the project under which the survey occurred, but it is unknown if implementation of avoidance measures actually occurred. It is also unknown how the observed sites could be impacted by the proposed new project under this study request. No final report of effects analysis for the plants encountered has been presented to the Forest for review. At this time, no plant species listed under the Endangered Species Act (ESA) are known or suspected to within the project area. However, two listed species that could be impacted by water depletions or changes in hydrology could occur in upstream corridors leading to reservoir inlets or downstream of the project area. There is medium to high potential of existence of additional undocumented sites of observed rare plants. There are roughly six additional Sensitive plants, five plants of Local Concern, and several rare plant communities that could occur in the project area that were not surveyed or that were under-surveyed. Page 42 of 55	diversion on Vasquez Creek was added to FEIS Sections 4.1 and 5.1. Flow changes were quantified and summarized in tables presented in FEIS Appendix H. A sampling and sediment modeling location was added on Vasquez Creek downstream of the Gumlick Tunnel outflow to evaluate stability and channel morphology. Analyses of the existing system are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-184*** *(ID 3798)**:*** *Section 4.1, Surface Water: General Comments: Section 4.1 and 4.13 - There is no disclosure of the impacts to water levels during peak diversion season (summer months) in Dillon and Green Mountain Reservoirs. The White River National Forest has significant investments in recreation facilities and associated infrastructure at these reservoirs. Additionally, planning is underway to construct a boat ramp on Green Mountain Reservoir and there is concern that any design of the boat ramp factor in the direct, indirect, and cumulative effects of the Project. A 45-year average makes it difficult to comment on potential impacts to recreational opportunities and facilities and Dillon and Green Mountain Reservoirs.* **Response #738-184:** As Denver Water's demand grows in the future, Denver Water would divert additional water from the Blue River via its Roberts Tunnel Collection System. The hydrologic effects of these diversions, including flow reductions in the Blue River and fluctuations of lake levels in Dillon Reservoir, were evaluated and are presented in DEIS Chapter 4 in Sections 4.1.1.2 and 4.1.1.1, respectively. A discussion of fluctuating

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A new survey and results analysis are needed to meet Forest Service direction in completing a Specialist's Report, including a Biological Evaluation for Sensitive plants that are on the Forest Service Region 2 Sensitive Species List, Biological Assessment for listed plants, and assessment of impacts to other rare plants of Local Concern and rare plant communities. The Forest Service is required to assess potential affects of the project proposal to rare plant species. An appropriate updated list of target species needs to be formulated. An intuitive controlled survey is needed for this assessment. A re-survey of certain wetland areas surveyed by Brune (2001) may not be necessary. However, other riparian areas already surveyed by Brune and areas not surveyed may need to be surveyed. Numerous upland areas not surveyed may also need to be surveyed. **5.) NEXUS Between the Study and the Project:** Results of the proposed survey will allow the Forest Service to assess presence of, and impacts to, rare plants and plant communities, and whether or not potential effects to Sensitive plant species would lead toward Federal listing under the Endangered Species Act. Results would allow the Forest to determine if proposed actions would be in compliance with the Forest Plana and Forest Service policy regarding listed, Sensitive, and rare plants. Avoidance or mitigation measures to reduce adverse impacts for rare plants or communities may become part of License requirements. **6.) Study methodology:** The presented methods and guidelines are standard operating procedure for the Forest Service project assessments. This Forest holds contractors to the same level of qualification, performance and documentation standards as efforts conducted internally by the Forest. "Types of Surveys" Guidelines at the end of this document (Attachment A) are consistent with literature provided on plant survey intensity levels and the article "Rare Plant Surveys: Techniques for Impact Assessment" by James R. Nelson, from the Natural Areas Journal (Vol. 5, No. 3)). **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient:** Anticipated workloads and cost vary greatly as a function of vendors and frequency of rare plants encountered. Vendor costs range from $300 to $1200 per day, inclusive of travel and field costs. It is estimated that there would be 10-16 field-person days (2 people for 5-7 days or 4 people for 3-4 days, depending upon what was encountered) to survey all areas of suitable habitat for target species and 4 days of report writing. The project area has been rated for likelihood of rare plant occurrence (high, moderate and low). There are known occurrences of rare plants in the project area; these may need additional re-surveys. Potential for additional undocumented target plants to occur is medium to high, depending upon target species. As a general rule, riparian areas have a high potential to support rare plants. Page 43 of 55	reservoir levels and their impacts on the usability of boat ramps at Dillon Reservoir was provided in DEIS Section 4.13.6.1. This analysis was expanded in FEIS Section 5.15 to reflect the number of days the boat ramps at Dillon Reservoir would be inoperable due to low water levels. Denver Water does not operate Green Mountain Reservoir and the proposed Project would not change existing operations of Green Mountain Reservoir. Under the Proposed Action, Denver Water's substitution obligation to Green Mountain Reservoir would increase slightly because diversions at Dillon Reservoir would increase. As indicated in the EIS, the substitution, in some years, is estimated to be increase between 1,300 and 2,500 AF in September. ***Comment #738-185*** *(ID 3799)**:*** *The White River National Forest and the Bureau of Land Management are preparing a Wild and Scenic River (WSR) eligibility analysis of segments of the Colorado River. As part of this effort, a stakeholders group has been formed to offer an alternative to the Wild and Scenic designation whereby streamflow rates associated with ORVs are maintained along with current and future consumptive uses of the Colorado River. DW is an active participant in this stakeholder's process.* **Response #738-185:** The Corps coordinated with the Bureau of Land Management (BLM) regarding the Wild and Scenic River designation process throughout the NEPA process. Sections of the Colorado River within the Project area considered eligible for Wild and Scenic Rivers designation are described in DEIS Sections 3.13.5 and 3.13.5.3. An eligibility determination for potential designation under Wild and Scenic Rivers Act does not preclude a project from being permitted. The Corps' Section 404 regulations

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The NFMA includes direction to preserve and enhance the diversity of plant and animal communities, including endemic and desirable naturalized plant and animal species, so that their diversity is at least as great as that which would be expected in a natural forest (36 CFR § 219.26 and § 219.27). The NFMA also requires the maintenance of plant and animal diversity commensurate with the overall multiple-use objectives of the USFS. The FSM requires review of projects that may affect species listed as Sensitive, and preparation of a Biological Evaluation to ensure that activities do not increase the likelihood of future Endangered Species listing. The Forest Plan identifies MIS. The USDA Forest Service also has specific policy direction regarding sensitive species (USDA Forest Service Manual [FSM] 2670), habitat management (FSM 2620) and cooperative relations with state and other federal agencies (FSM 2610), including but not limited to: • Develop and implement management practices to ensure that species do not become threatened or endangered. • Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range. • Develop and implement conservation strategies for sensitive species and their habitats, in coordination with other Forest Service units, managing agencies, and landowners, and coordinate management objectives to conserve sensitive species with state and federal agencies, tribes and other cooperators as appropriate (FSM 2670.22). • Assist States in achieving their goals for conservation of endemic species. • As part of the National Environmental Policy Act process, review programs and activities, through a biological evaluation, to determine their potential effect on sensitive species. • Avoid or minimize impacts to species whose viability has been identified as a concern. • If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole. In addition, the USFWS is required under the authority of the Endangered Species Act to review and provide comment on federally authorized projects that may affect listed or proposed species. **4.) Existing Information and Need for Additional Information:** Wildlife surveys were conducted in the 1990's for the Winiger Ridge Ecosystem Pilot Area Vegetation Management Project and for the Gross Reservoir Hydroelectric FERC Relicensing project. However, both the USFS Region 2 Sensitive Species List and the ARP MIS list have Page 51 of 55	*dimension, pattern, profile of the streams and impact aquatic and riparian habitat. Can water be moved to mimic periodic natural peak flows? A hydrograph that mimics spring floods during the wettest months of the year would help maintain channel morphology. Is degradation to channel morphology currently occurring at the flows described above? The FS would like to see bank erosion measurements and summaries of the existing aquatic habitat for all affected stream reaches on the Forests.* **Response #738-175:** There would be no impact on the magnitude of periodic peak flows attributable to the Proposed Action. The magnitude of annual peak flows along the North Fork South Platte River would be virtually the same for both Full Use of the Existing System and the Proposed Action for all flood flows with an estimated recurrence interval of 2 years or more. The duration of high flows would increase under the Proposed Action. Assessments of stream morphology consider the additional flows that would be conveyed in East Slope streams. The analyses of stream morphology, included anticipated changes in response to greater overall flows in these rivers were supplemented in the FEIS. Additional assessments included sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Historic photographs were obtained and evaluated to quantify past observable changes in stream morphology and augment results obtained through numeric modeling. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3.

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Evaluations of proposed ground-disturbing activities would address habitat suitability for special-status species, the scope of the proposed activity, and the degree to which special-status species rely on habitats affected by the proposed activity. The need for additional site-specific information will be contingent on the potential for effects to special-status species and habitats. Additional information is also needed regarding the potential for changes to riparian habitats on the West Slope as a result of increased depletions and/or changes in timing of water flows, and the potential for changes to riparian habitat on the East Slope as a result of changes to water flow amounts and/or timing. Many special-status species inhabit riparian habitats and associated streams, and could be affected. If the project will result in changes to water flow amount and/or timing downstream from Gross Reservoir, an assessment of impacts to downstream Threatened and Endangered species in the Platte River will be needed. **5.) NEXUS Between the Study and the Project:** As discussed above, various laws and regulations require analysis of special-status species potentially affected by the proposed project. In order to properly assess impacts to special-status species, field surveys are needed commensurate with expected impacts of the proposed action to these species and their habitats. As discussed above and below, potential impacts include new inundation around Gross Reservoir, changes in amount and/or timing of water flows, and ground-disturbing activities such as vegetation removal, new temporary or permanent roads if any are proposed, and relocation of recreation facilities. **6.) Study Methodology:** All areas within the Project Boundary that are subject to ground-disturbing activities related to project operations or maintenance, new inundation including associated vegetation removal and proposed new roads if any, and/or changes in water flow amount and/or timing should be assessed for their potential to support special-status wildlife. Special-status species and habitats are defined as those listed by the USFWS, USFS, and/or CNHP. Wildlife assessments should review the habitats present in the area subject to ground disturbance, new inundation, and/or water flow changes, in relation to species distributions, habitat requirements and life history information. Species information should be obtained from the best available science, including Species Conservation Assessments prepared for the Forest Service Rocky Mountain Region (USDA Forest Service 2008). This information should be used to Page 52 of 55	***Comment #738-178*** *(ID 3791)**:*** *"Floodplains in North Fork South Platte River and South Boulder Creek above Gross Reservoir are unchanged by alternatives because imports through Roberts Tunnel and Moffat Tunnel are managed to stay within the channel. Floods can occur in these basins due to local snowmelt or precipitation, but not due to the changes in the Moffat Collection System." Show at what frequency bankfull flows are released through the system in order to maintain stream channel dimensions and habitat.* **Response #738-178:** Water is not delivered through the Moffat Tunnel or Roberts Tunnel for the purposes of maintaining stream channel dimensions and habitat. ***Comment #738-179*** *(ID 3792)**:*** *"Antero Reservoir to Cheesman Reservoir: In the upper South Platte River, changes in flows under Full Use Existing System would be due to DW's increased demand and changes in the timing of any amount of reservoir releases. Changes in reservoir releases under Full Use Existing Conditions would differ depending on storage conditions in DW's north and south systems and hydrologic conditions." "Although DW has the ability to reduce bypass flows below Eleven Mile Canyon Reservoir they have not exercised that right to date. Reductions in bypass flows below Eleven Mile Canyon Reservoir were not included in PACSM." This stretch of the South Platte River was 303(d) listed sediment and temperature. Instream restoration has been completed to work towards the TMDL compliance. Show how the reduction in bypass flows or the other proposed flow regimes would affect the sediment standards and other water quality standards that the CDPHE enforces.* **Response #738-179:** Please see the response to Comment ID 3584.

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 assess (1) the availability of appropriate habitat within the proposed activity area and (2) the potential for each species to be affected by the proposed activity. Wildlife assessments should be conducted by individuals with: (1) experience conducting wildlife surveys, (2) knowledge of wildlife taxonomy and wildlife community ecology and classification, and (3) familiarity with the wildlife of the area, (4) familiarity with appropriate state and federal statutes related to wildlife, and (5) experience with analyzing impacts to wildlife and wildlife communities. Survey methods will vary greatly by species, and should be based on accepted protocols for each species if available. Survey techniques are discussed for some species in Species Conservation Assessments. If special status species or habitats are documented or likely to occur in the study area, or may be affected by water flow changes, project effects on each species should be assessed with consideration of the size of the affected area, the timing and duration of disturbance, the type of activity, the reliance of the individual species on a given habitat, and the degree to which such habitats are disturbed or otherwise affected. If warranted, these considerations should be incorporated into management and/or mitigation efforts developed in consultation with the resource agencies. **7.) Describe considerations of level of effort and cost and why any proposed alternative studies would not be sufficient:** Anticipated workloads and cost vary greatly, depending on different survey protocols for special-status species and varying costs for contractors/consultants. Survey protocols for some species, particularly Threatened or Endangered, are intensive and costly and require specific surveyor qualifications to be acceptable to the USFWS. Consultant costs may range from $300 to $1200 per day, inclusive of travel and field costs. Level of effort and cost for initial field studies for this study would be based on these factors. The level of effort required to evaluate future areas of ground disturbance will be evaluated at the time such activities are proposed or specifically defined and located on the ground. No alternative studies have been proposed. **Data Analysis and Reporting** Study reporting should include study objectives, study area, methods, survey results, assessment of project effects on special-status species and habitats, and recommendations for resource protection measures, if warranted. The report should also include species summaries (e.g., life history, habitat requirements, current status and threats) for special-status species documented or with potential to occur within the study area. **References** USDA Forest Service. 1997. 1997 Revision of the Land and Resource Management Plan. Arapaho and Roosevelt National Forests and Pawnee National Grassland. *Forest Service. 2002. White River National Forest land and resource management plan. Department of Agriculture, Glenwood Springs, Colorado. April 2, 2002* Page 53 of 55	The updated (i.e., 2012) Section 303(d) List has been evaluated for impacts from the proposed Moffat Project. Please see FEIS Sections 4.6 and 5.2. ***Comment #738-157*** *(ID 3777)**:*** *"To assess the impacts of changes in sediment transport capacity on channel morphology, calculated bedload capacity was compared to anticipate sediment supply at representative sampling sites along the Fraser River, St. Louis Creek, Ranch Creek, Williams Fork River, Colorado River, South Boulder Creek, and North Fork South Platte River. Given the minor flow changes predicted in the Blue River and South Platte River, impacts to channel morphology under the alternatives along these rivers are predicted to be negligible." There needs to be a summary of existing sediment yield and sediment supply and comparison with Full Use Existing and Full Use Proposed sediment modeling. Show the effects of increased shear stress on lateral migration or bedload transport.* **Response #738-157:** Current and predicted sediment transport is provided for Current Conditions (2006), full use of the existing system and full use with the Project alternatives (2032) proposed in FEIS Appendix H. Impacts of increases and decreases in flows and corresponding shear stress on channel morphology were evaluated using historic data as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. ***Comment #738-158*** *(ID 3778)**:*** *The South Platte between Elevenmile Reservoir and Strontia Springs Reservoir has been impacted by increased sediment from several large wildfires. Display how increased sedimentation has been*

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	Enclosure 5. US Forest Service Study Requests, Gross Reservoir Hydroelectric Project, P-2035 *Forest Service. Undated. Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands land and resource management plan. Department of Agriculture, Pueblo, Colorado.* USDA Forest Service. 2008. Species conservation program: species conservation assessments. http://www.fs.fed.us/r2/projects/scp/assessments/index.shtml Page 54 of 55	*quantified and modeled under the various flow regimes. "Under all alternatives, increases in flow would result in an increase in sediment transport capacity along South Boulder Creek and the North Fork South Platte River. It is possible that the increase in sediment transport capacity in these basins could lead to minor localized bed and bank erosion." Without a clear analysis of the existing bed and bank erosion, this is simply a narrative statement not supported by modeling.* **Response #738-158:** Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport were completed. Results are provided in FEIS Sections 4.6.3 and 5.3. Increased flows between Eleven Mile Canyon Reservoir and Strontia Springs are expected to reduce the time required for the stream to recover from increased sediment loads. Model results in FEIS Sections 4.6.3 and 5.3 show that sediment transport capacity along South Boulder Creek and the North Fork South Platte River would generally increase with the proposed Project. The conclusion that localized bed and bank erosion could occur was based on these results. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic photos as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. ***Comment #738-159*** *(ID 3779)**:*** *Section 4.1, page 4-9: Summary of major conclusion- stream morphology and sedimentation* *The statement "All alternatives would result in changes in flow during average and wet conditions and then primarily during the wettest months of the*

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	Enclosure 5. US Forest Service Study Requests; Gross Reservoir Hydroelectric Project, P-2035 Page 55 of 55	*year; therefore, reductions in sediment transport capacity resulting from the alternatives are expected to have negligible impacts on channel morphology." is incorrect. Based on results from Ryan 1997 (cited in the DEIS), it is the continued provision of the infrequent high flows (5-10 year RI) and sustaining the prediversion frequency of > or = bankfull flows over the long-term that maintains channel morphology. The conclusion that diversion had limited impact on channel morphology was derived under the observation that the high flows had continued to bypass diversion structures with sufficient frequency to maintain the channel configuration in most of the settings evaluated. High flows not only maintain coarse bedload transport through the channel, but also prevent riparian vegetation from invading the channel edges and bars. Without these flows, channels begin to aggrade, insets form, and mobile surfaces become stabilized by vegetation. Under current conditions, DWD has only a limited ability to affect flows with a >10 year RI (See figure 5, Ryan 1997). DW proposes to divert high flows from the wettest months of the wettest years and reduce the frequency of bankfull flows to less than 0.5% of current frequency (from 15 days per year to once every 13 years on the mainstem Fraser for effective discharge) but claims this will have a negligible impact on channel morphology. Even under current conditions where infrequent high flows are provided due to a lack of diversion capacity and the frequency of bankfull flows over the long-term is similar to prediversion conditions, Ryan 1997 noted substantial reductions in channel width (35-50%) on St. Louis Creek in channel units that were unconfined (free to adjust). Methodology used in sediment capacity evaluation must be explained more clearly, we are uncertain if sediment transport analysis is for phase I transport only for particles < or = 4 mm. Figures from appendices need to be*

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		included in text for ease of location. The analysis should include disclosure of how flow regime changes affects the dissolved (solution) load in affected streams. **Response #738-159:** As has been shown by Ryan (1997), peak flows can be reduced with either subtle or no change to stream morphology. Ryan concludes that continued high infrequent flows with 5-10 year recurrence intervals maintain stream morphology. Recurrence intervals of peak flow events were evaluated as part of the analysis to quantify changes to these less frequent flow events. Results are provided in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology, including vegetative encroachment resulting from existing flow reductions was completed using historic data as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. Discussion on the potential for existing wide, unconfined channel segments to adjust is included in FEIS Sections 4.6.3 and 5.3. A Phase 2 sediment transport analysis was conducted. The change in the duration between flow events causing Phase 2 transport was evaluated. Results and discussion of anticipated impacts are provided in FEIS Sections 4.6.3 and 5.3. An evaluation in the potential changes to peak flood flow magnitudes and frequencies was completed as in included in FEIS Sections 4.6.3 and 5.3. Due to the volume of figures included in the document, it is more appropriate to include this supporting information in appendices.

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		Comment #738-162 *(ID 3780)**:*** *Section 4.1, page 4-16: The geomorphic literature is very clear in stating that bedload transport is typically energy-limited. The suspended load transport is supply limited. The best example of supply-limit occurs in heavily developed areas with large areas of impervious surfaces, which is not comparable to a forest setting. If bedload capacity far exceeds sediment supply (by orders of magnitude) at all stream locations studied, then why don't the existing conditions of studied stream channels show extreme channel degradation? Contrary to what the DEIS states, research is finding that the channel width and cross-sectional area are reduced and the channel aggrades following flow diversion. The discussion on Page 4-21 regarding a "sediment balance" concept conspicuously fails to mention that when capacity greatly exceeds supply, degradation is the expected outcome. In our experience the Meyer Peter-Muller (MPM) equation does not provide an appropriate estimate of sediment transport in coarse bed channels, but performs better in sand and gravel bed streams. In applying the MPM to the streams covered in the DEIS several of the parameter ranges for the study streams are outside of the MPM function range (particle diameter and maximum channel width), which will lead to questionable results. Recent research has improved our understanding of bedload transport since the 1950's and other more recent bedload transport capacity functions such as the 1990 Parker function must be used to cross-check the MPM for accuracy. For example, the Grand County Stream management plan used the Parker bedload function. The USFS also has a publically available, detailed bedload data record from actual measurements on St. Louis Creek that should be used to validate the MPM sediment bedload equations. While we noticed that the sediment equation results were compared to some*

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		published data from St. Louis Creek, we are unsure if the larger data set which includes sediment larger than 4 mm was used or not. This data can be found at the following link: http://www.fs.fed.us/rm/data_archive/dataaccess/FEF_bedload_transport.shtml **Response #738-162:** Additional information was added to FEIS Section 4.6.3 discussing relevant research pertaining to channel responses to diversions, effective discharge and use of various equations for sediment transport modeling. Sediment transport capacity can exceeds sediment supply without incision. This situation often occurs in stream with armored beds and banks. Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport were completed. Results are provided in FEIS Sections 4.6.3 and 5.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic photos as a way to supplement results obtained from numeric modeling. This analysis is provided in FEIS Section 4.6.3. Additional USFS sediment data collected in the Fraser Experimental Forest were evaluated for comparison with the sediment data and is discussed in FEIS Section 4.6.3. ***Comment #738-166*** *(ID 3781)**:*** *Section 4.1, page 4-18: The DEIS makes questionable assumptions of sediment supply: under undisturbed subalpine forest conditions, erosion generated by overland flow is rare. However, most of*

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		the basins in question are disturbed via development, timber harvest, mining, heavy recreation use, water diversions et cetera. Thus, many of the watersheds are supplying sediment at an accelerated rate so that sediment-rating curves from representative sites in the upper Williams Fork are not appropriate for the more heavily disturbed basins. The sediment "supply" equation used is more representative of wilderness basins with streams transporting mostly suspended and bedload derived from channel margins and bed. The result is that for developed basins, the supply equation under predicts watershed derived loads. Moreover, the supply equations presented are actually sediment discharge equations since they are related to stream discharge. Are the equations based on the assumption that the amount of bedload transported is equal to the sediment load supplied by the watershed? It is uncertain how these equations reflect the supply of sediment to the stream system. For upland sediment supply, try using actual upland erosion models like the USLE or WEPP, data on traction sand application (in the case of the upper Fraser) and sediment delivery ratios for sediment supply estimates instead. In addition, how does DW account for the periodic flushing of accumulated sediment from behind their diversion structures in the sediment analysis? Flow modeling is based on departure from conditions occurring over past 45 years. However, flows have been largely diverted during this time. Additional diversion amounts appear to be small because they are compared against flows that are already depleted. Suggest analysis address the full amount of flow that would be diverted from these systems. **Response #738-166:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full

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		Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply was found to be related to flows. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Sediment data derived from these site-specific studies are more appropriate and accurate than sediment estimated from models such as USLE or WEPP. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. To account for the fact that there is uncertainty in sediment supply, a sensitivity analysis of sediment supply was completed with results provided in FEIS

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		Section 4.6.3. Impacts of traction sand on the Fraser River were included in the assessment. Sediment "trapped" and then flushed from behind Denver Water's Diversion points is included in the analysis in that no reductions in sediment supply is assumed at the diversion points. ***Comment #738-167*** *(ID 3782)**:*** *Section 4.1.1.1, page 4-30: It appears as if the average annual net evaporative losses predicted from an enlarged Gross are underestimated (~ 33%) as compared to evaporative losses at other reservoirs (DW omitted a digit in their evaporation loss reporting for Gross). If one looks at table H-8.1 and normalizes evaporation losses by surface area, the depth of evaporative losses at Gross, although lower in elevation, are only about 66% of that from higher elevation reservoirs such as Dillon, Wolford and the Williams Fork per unit area per year. Typically in Colorado, evaporation values are inversely related to elevation so that the evaporation at Gross should exceed that of the other reservoirs in the following table. The net evaporation at Gross should be closer to 1400 AF/year which is approaching 10% of the predicted annual shortfall of supply in 2030. Table 3 (below) illustrates the error. [EE TABLE 3. RESERVOIR EVAPOTRANSPIRATION IN SOURCE FILE.] The error is significant in how it affects the water budget for this Project. In other words, the storage Project becomes a less attractive, less efficient use of water as the ratio of water diverted to water available for use increases. Higher than reported evaporation losses will increase this ratio. The error needs to be corrected and the Project reassessed based on new information.* **Response #738-167:** Monthly net evaporation rates for reservoirs are an

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		input to the PACSM. During simulation, at the end of each time step, the current evaporation rate for a given reservoir is multiplied by the reservoir's surface area in that time step. The average annual evaporation loss is the average total volume of evaporation, accumulated over all time steps within a year. "Normalizing" the evaporation by dividing annual evaporation volume by the reservoir's surface area when full does not yield the net evaporation rate because it does not take into account fluctuating reservoir content or the curvilinear relationship between content and surface area. The annual net evaporation rates used in the model were as follows: • Gross Reservoir – 16.65 inches. • Williams Fork Reservoir – 30.51 inches • Dillon Reservoir – 23.92 inches • Wolford Mountain – 22.64 inches Net evaporation rate supplied to the model is calculated outside the model as gross monthly evaporation, less a portion of monthly precipitation. The gross evaporation rates that Denver Water uses to represent its own reservoirs (including Gross, Dillon, and Williams Fork) were based on two studies done by the USGS: 1. Evaporation from Seven Reservoirs in the Denver Water-Supply System. Central Colorado, USGS Water-Resources Investigations 76-114, April, 1977. 2. Reservoir Evaporation in Central Colorado. USGS Water-Resources Investigations Report 83-4103, 1983. To represent evaporation at Wolford Mountain Reservoir, the Colorado River Water Conservation District uses a procedure devised by the SEO. The

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		SEO procedure first estimates average annual free water surface evaporation from the Evaporation Atlas for the Contiguous 48 United States (National Oceanic and Atmospheric Administration Technical Report NWS 33, June 1982). The annual free water surface evaporation rate is converted to monthly values by a monthly distribution. The Corps believe these are the best available sources for site-specific information on evaporation rates. In fact, of these four reservoirs, Gross Reservoir has the smallest annual gross evaporation despite being lower in elevation, as shown in the table below. Gross evaporation rate is offset by precipitation during the evaporation season, to produce net evaporation rate. Precipitation estimates for PACSM were based on historical climate observations at nearby stations. Average annual precipitation for Gross Reservoir is higher than average annual precipitation at the other three reservoirs. • Gross Reservoir Annual Gross Evaporation (inches/year) = 27.12 • Gross Reservoir Annual Precipitation (inches/year) = 21.51 • Williams Fork Reservoir Annual Gross Evaporation (inches/year) = 37.80 • Williams Fork Reservoir Annual Precipitation (inches/year) = 15.36 • Dillon Reservoir Annual Gross Evaporation (inches/year) = 30.72 • Dillon Reservoir Annual Precipitation (inches/year) = 15.12 • Wolford Mountain Reservoir Annual Gross

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		Evaporation (inches/year) = 28.27 • Wolford Mountain Reservoir Annual Precipitation (inches/year) = 11.60 In 2009, Denver Water reviewed the precipitation estimates using spatial analysis, developing isohyetal mapping for the PACSM domain to transfer observed climate data to reservoir sites. The exercise yielded similar results, with Gross Reservoir having the greatest amount of precipitation among these four reservoirs. Annual net evaporation is not the same as the difference between "Annual Gross Evaporation" and "Annual Precipitation," because for months in which precipitation exceeds monthly evaporation, net evaporation is set to zero. Since gross evaporation is typically zero during winter months, winter precipitation reflected in the "Annual Precipitation" is not reflected in the "Net Evaporation." ***Comment #738-163*** *(ID 3783)**:*** *Section 4.1.1.1, Water Quality for Gross Reservoir, page 4-31: "This could change the overall water quality within the reservoir because stream water quality can be significantly different in dry, average, and wet years." The DEIS should show how water quality would be expected to change for each of the scenarios for either better or worse.* **Response #738-163:** Under existing conditions, stream water quality can be significantly different in dry, average, and wet years and thus this is not a significant change from existing conditions. FEIS Section 5.1.1.1 has been edited to clarify this statement. ***Comment #738-164*** *(ID 3784)**:*** *Section 4.1.1.2, page 4-35: Prioritizing and sequencing diversion from the major source rivers*

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		might help to mitigate project effects. Taking water first from less developed and impacted systems might help maintain habitats and avoid resource conflicts. The DEIS does not contain enough information to determine if this alternative was evaluated. **Response #738-164:** Current operations are discussed in FEIS Chapter 3, including Minimum Bypass Requirements, typical Denver Water Moffat Collection System operations in the Fraser River Basin, Williams Fork operations, the Shoshone Call, and operations in dry/wet/average years. The FEIS includes a discussion on an effort to use Denver Water's system flexibility to enhance environmental conditions in Grand County. The LBD cooperative effort is comprised of a variety of stakeholders including Grand County, Denver Water, and CPW that will evaluate current environmental conditions and develop a stream management plan to leverage the operational flexibility of Denver Water's system for coordinated environmental flows and stream improvements. The management plan will be evaluated by the LBD group and changes will be made according to measured results and management goals. A full description of LBD can be found in FEIS Appendix M. ***Comment #738-165*** *(ID 3785)**:*** *Page 4-35, Fraser River Stream Flow: The rationale to combine several of the smaller tributaries to model flow is questionable. Small tributaries are underrepresented in the analysis and whether the proposed action impacts or does not impact those channels has not been demonstrated.*

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		Response #738-165: This approach taken to combine and model smaller tributaries jointly is reasonable because the tributaries that were combined are located in close proximity, diversions are of similar magnitude and timing, there is little or no gage data that could be used to model them separately, and the affected environment was similar. Small tributaries are not underrepresented in the analysis. Within the Fraser River, resources were evaluated on several small tributaries including Jim Creek, King Creek, Little Vasquez Creek, Cooper Creek, Cub Creek, Buck Creek, Elk Creek and tributaries, St. Louis Creek tributaries, North Fork Ranch Creek, Middle and South Fork Ranch Creek, and Dribble Creek. DEIS Table 4.1-2 shows which of these tributaries were combined and modeled jointly. ***Comment #738-220*** *(ID 3856)**:*** *Section 4.1.1.2, page 4-36: DW asserts that "the (bypass flow) agreements do not define set amounts for the bypass flow reductions" but the Clinton agreement only waived stipulations for 3 out of 4 streams with required bypass flows (Ranch Creek bypass flow stipulations were not waived). It appears that section 3.(e)2 of the 1970 amendatory decision is still in effect for Ranch Creek; therefore, there is a formula for reducing the bypass flow at Ranch Creek. The stated formula is "if at any time Gross reservoir storage falls below 25,000 AF, the Ranch Creek bypass flow may be reduced by 6% per each 1000 AF of storage water below 25,000 AF in Gross". According to this formula for the Ranch Creek bypass reduction, the PACSM modeling for bypass flow reductions on Ranch Creek is in error as the model assumption of < 65% reservoir storage results in approximately 27,000 AF (existing size) or 74,000 AF (enlarged) stored in Gross; Ranch Creek bypass flow would not be allowed to be reduced under these circumstances.*

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		Response #738-220: The comment references section 3.(e)2 of the 1970 Stipulations and asserts that the Denver Water Board may only reduce bypass flows on Ranch Creek as a function of Gross Reservoir storage when contents drop below 25,000 AF. However, Paragraph 5 of the 1970 Stipulations allows the Denver Water Board to reduce bypasses at each of the subject streams (Fraser River, Vasquez Creek, St. Louis Creek, and Ranch Creek) whenever it becomes necessary for the Board to impose restrictions due to insufficient water supplies. This condition is irrespective of Gross Reservoir contents as referenced in Paragraph 3 of the Stipulations. Because the language in Paragraph 5 states that bypasses may be reduced "in accordance with the severity of the restrictions" and does not define set amounts for the bypass flow reductions, the statement referenced in DEIS Section 4.1.1.2, on page 4-36 is appropriate. Paragraph 5 was altered by the 1992 Clinton Agreement, such that Denver Water would only reduce bypass flows if mandatory restrictions were imposed on its customers, provided the reduced bypass flows would not result in mandatory restrictions on indoor use to Grand County water users or if mandatory restrictions on indoor use were placed on Denver Water customers. The comment misinterprets the use of the 65% storage content factor which was used as a criteria for reductions of bypass requirements. The 65% factor applies to Denver Water's overall system storage (West and East slopes) not just Gross Reservoir as implied by the comment. The Ranch Creek bypass reduction reflected in PACSM is not in error. ***Comment #738-221*** *(ID 3857)**:*** *Page 4-36, 1st paragraph. Tables H-7.1 through H-7.3: Average annual Moffat Tunnel diversions would increase by 10,300 AF or 15% and 11,800 AF or*

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		19% in average and wet years, respectively." The average value of 10,300 AF does not agree with the value shown for increased flows in South Boulder Creek [from Moffat tunnel diversions] of 10,400 AF that is found on page ES-18 of the executive summary. **Response #738-221:** The text in the Executive Summary was corrected as follows: Average annual flows in South Boulder Creek at the Pinecliffe gage (above Gross Reservoir) would increase by about 2,300 AF (2%) under the No Action Alternative, 10,300 AF (9%) under the Proposed Action, and between 9,200 AF and 10,100 AF (8 to 9%) for the other action alternatives. ***Comment #738-222*** *(ID 3858)**:*** *Section 4.1.1.2, page 4-37: Although it is counterintuitive, many west slope streams such as St. Louis Creek do not "grow" in volume in a downstream direction except for certain times of the year. For example, following runoff in the irrigation season, downstream diversions and use result in decreased downstream discharges in St. Louis Creek, further magnifying reductions in flow in these downstream areas, rather than diluting them as suggested in the text. Starting on page 4-37, the text becomes extremely difficult to read as it includes information that should be represented in tabular format. In the aquatic resources section, creeks were broken up separately. Consider this same format for Fraser River tributary discussions. The results of an increase in water diversions from the Gumlick Tunnel to the Vasquez Tunnel and how that might affect Vasquez Creek should be addressed in the document. As described previously in these comments, Vasquez Creek below the tunnel (without accounting for Vasquez Tunnel imported flows) is eroding large piles of material left by DW from the*

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		boring of the tunnel in the 1960's. This large spoils pile sits immediately adjacent to the creek, and the creek has begun to erode that material, which is subsequently ending up in the creek. DW, according to their permit, should have removed these spoils after tunnel construction. **Response #738-222:** The information presented in Section 4.1.1.2 is presented in tabular format in Appendix H-3, H-5, H-6, and H-7. As requested, the discussion of stream flow changes in the Fraser River Basin was broken up by creek similar to the aquatic resources section (see Sections 4.1 and 5.1 in the FEIS). The text was revised to indicate where in the Fraser River Basin streams do not increase in volume in the downstream direction. A discussion of flow changes and associated resource impacts along Vasquez Creek between the Gumlick Tunnel and Denver Water's Diversion from Vasquez Creek was added to FEIS Chapters 4 and 5. Flow changes were quantified and summarized in tables presented in FEIS Appendix H. The Corps was not the permitting agency for the construction of the Vasquez tunnel and Denver Water is not proposing any construction related activities on Vasquez Tunnel or the associated canals, tunnels, siphons, or other aspects of the Fraser and Williams Fork rivers collection systems. Furthermore, Denver Water was issued a "Proof of Construction Accepted" letter on July 19,1978 which states "Representatives of the Forest Service have determined that adequate compliance has been made with the terms and conditions of the decision granting ROW, and that the constructed location conforms to the location represented on the map designated in that grant." If the USFS feels that conditions in the original permit, which allowed

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		Denver Water to construct the Vasquez tunnel, are not being met by Denver Water, USFS should contact Denver Water to resolve those issues. ***Comment #738-225*** *(ID 3859)**:*** *Below is a brief discussion of DW's stipulations associated with their operation and construction of Vasquez Tunnel. DW has not adhered to these stipulations under current operations; any increases in water diversions from the Gumlick Tunnel to the Vasquez Tunnel raises additional concerns regarding the proposed Project. Stipulations included by the FWS in the federal right of way for the Vasquez Tunnel include the following (from Bureau Sport Fisheries and Wildlife Memo dated November 21, 1969): a. Control the releases of water into Vasquez Tunnel to avoid unreasonable or unnecessary erosion of the natural channel of Vasquez Creek below the tunnel outlet b. Protect the stream channel and stream banks through such measures as are necessary and approved by the USFS to avoid unreasonable or unnecessary damage from the increased flow of water incident to diversion of water through the tunnel Other stipulations included in DW's right of way regarding Vasquez Tunnel: a. To abide by the follow provisions as to material excavated from the tunnel: 1. All encroachment on streams will be avoided, and no waste materials will be deposited in, or be permitted to obstruct natural stream channels 2. The surface of the spoil bank shall be graded off to an even grade and where practicable, top soil placed on top, and seeded to grass or planted to other vegetation b. To abide by the following provisions as to areas on which the ground cover is destroyed in the course of construction: 1. To install suitable devices and drainage structures sufficient in number to prevent the accumulation of excessive heads of water and the erosion of the land surface 2. Top soil shall be stripped from the permitted area and be*

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		deposited in storage piles apart from other excavated material. After the desired amount of material has been removed and the excavation trimmed and smoothed, the stored topsoil shall be evenly spread over subsoil exposed, and shall be seeded to grass or planted with other suitable vegetation. There are also stipulations from the Bureau of Land Management as part of their right-of-way that include weed control on Federal Lands. Spoil piles that were not reseeded or re-vegetated after the boring of Vasquez Tunnel have infestations of oxeye daisy that need to be addressed. **Response #738-225:** The Corps was not the permitting agency for the construction and operation of Vasquez Tunnel. Furthermore, Denver Water is not proposing any construction-related activities on Vasquez Tunnel or the associated canals, tunnels, siphons, or other aspects of the Fraser and Williams Fork rivers collection systems. If the USFS believes Denver Water is not meeting the stipulations set forth in the original agreements for the construction of the Vasquez Tunnel, the USFS should consult with Denver Water or the permitting agency. ***Comment #738-223*** *(ID 3860)**:*** *Page 4-37, Fraser River Stream Flow, paragraph 4: There is no mention how flows will be changed along Vasquez Creek between the Gumlick Tunnel outflow and DW Board diversion on Vasquez Creek. Any flow changes need to be quantified.* **Response #738-223:** A discussion of flow changes and associated resource impacts along Vasquez Creek between the Gumlick Tunnel and Denver Water's Diversion from Vasquez Creek was added to FEIS Chapters 4 and 5. Flow changes were quantified and summarized in tables presented in FEIS Appendix H.

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		Comment #738-224 *(ID 3861)**:*** *Section 4.1.1.2, page 4-39: See 2010 CDPHE 303(d) list for possible correction to statement that no sections of the Fraser are listed.* **Response #738-224:** FEIS Section 5.1.1.2 has been modified to include the listed sections of the Fraser River. ***Comment #738-1*** *(ID 3848)**:*** *Page 4-40, Fraser River Stream Flow, paragraph 2: Refer to comments made on Section 3.1.6 of the DEIS.* **Response #738-1:** Please see the responses to Comment IDs 3555, 3582, 3585, 3606, 3607, and 3608. A sampling and sediment modeling location was added on Vasquez Creek downstream of the Gumlick Tunnel outflow to evaluate stability and channel morphology. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The FEIS was modified in Sections 4.6.11, and 5.11 to consider effects on fish and aquatic macroinvertebrates for the reach of Vasquez Creek downstream of the Gumlick Tunnel. Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. Historic photographs were also evaluated to provide additional insight to past and current stream conditions. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and

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		Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. This table is included to show differences and similarities in stream segments evaluated as part of the assessment. Additional sediment sampling and modeling sites were analyzed as part of the FEIS including lower gradient Rosgen C channel segments. Historic data were also evaluated to provide additional insight to past and current stream conditions. The analysis was also expanded to include a qualitative assessment of channel stability at reconnaissance sites selected by the USFS and Denver Water and evaluated as part of the evaluation for Two Forks. General conclusions regarding channel stability and sediment transport conditions at these additional sites were reviewed and included to provide a better understanding of the similarities and differences between sample sites evaluated in the FEIS and other stream segments. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-213*** *(ID 3849)**:*** *Section 4.1.1.2, page 4-53: Show how the completion of the Fraser River sediment pond would improve channel conditions and partially mitigate effects from the Moffat firming Project. Given that there is an "orders of magnitude" more capacity than sediment supply, Explain how traction sand is even*

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		an issue. The document should discuss the current status of the pond project and the road blocks to completion. The DEIS should disclose the other partners (besides CDOT) that have worked on this pond project. **Response #738-213:** Since the release of the DEIS, Denver Water, CDOT, Grand County, and others funded and constructed a sediment removal facility at Denver Water's Fraser River Diversion. This Project would reduce the sediment load below Denver Water's Diversion. The FEIS indicates that localized deposition is likely to continue at time of lower flows. Reduction in traction sand inputs to the Fraser River would help minimize the localized areas of aggradation discussed in the FEIS by reducing the sediment supply. ***Comment #738-214*** *(ID 3850)**:*** *Page 4-53, 2nd and 3rd paragraph. "These results indicate that the system is sediment-limited and the morphology of the channel is not expected to be impacted by flow reductions." On-the-ground experience indicates that this stream reach is not sediment limited. The substrate is heavily infilled with sand. The source of this sand is likely traction sand from Highway 40. This sand is evident in many locations along the Fraser River, and is particularly evident directly below DW's Fraser diversion. "Model results suggest that this localized deposition is likely to continue at times of lower flow and the material should be remobilized during higher flow events." The persistence of this sand infill would indicate that sediment transport capacity is not "orders of magnitude" greater than sediment supply, or is not effective in transporting the sand. We were unable to find particle size distribution for this site if in the voluminous appendix material.*

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		Response #738-214: An additional sediment sampling and transport modeling site was added on the Fraser River to better understand impacts of traction sand. Historic responses of the Fraser River were also completed using aerial photographs, gaging data and channel cross section to evaluate past impacts. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes considering traction sand are provided in FEIS Sections 4.6.3 and 5.3. Particle size distributions for all sediment sampling sites are provided in FEIS Appendix E. ***Comment #738-215*** *(ID 3851)**:*** *Section 4.1.1.2, page 4-62: Show how DW's water diverted from the Upper Williams Fork is used strictly as drinking water. Once combined with native Vasquez Creek flows, South Boulder Creek water. Unless it can be proven, this statement should be stricken from the EIS.* **Response #738-215:** Water is diverted from the Williams Fork River for the Denver Water drinking water system as opposed to other purposes for water diversion. This water naturally co-mingles with Vasquez Creek and South Boulder Creek. ***Comment #738-216*** *(ID 3852)**:*** *Page 4-62, Evaluation of Williams Fork River Water Quality: "Table 4.1-12, one parameter, dissolved oxygen, does not meet stream standards downstream of the confluence of the aforementioned four tributaries. The reason for depressed dissolved oxygen is unknown." Show whether this could be attributed to existing streamflow reductions, and resulting higher temperatures.*

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		Response #738-216: Dissolved oxygen concentrations are complex, dependent on many things (including re-aeration due to turbulence over boulders, temperature, respiration of biota, concentrations of various parameters, and the condition of the streambed). The reason for the depressed oxygen is unknown as it has not been studied in depth by any organization. ***Comment #738-217*** *(ID 3853)**:*** *Page 4-96, South Boulder Creek Stream Morphology and Sedimentation, 1st and 2nd paragraph: "…capacity is orders of magnitude greater than supply." "It is possible that the increase in transport capacity could lead to localized bed and bank erosion." "…the Proposed Action is expected to have only negligible impacts on channel morphology…" There needs to be more explanation to support the conclusion that there would be "negligible impacts" to South Boulder Creek. If capacity is orders of magnitude greater than supply, why would you not expect the stream to be seeking sediment, and why would you expect only localized bed and bank erosion. There are numerous examples of augmented stream channels in Colorado, including South Boulder Creek, where the impacts have not been negligible and localized, but rather significant and extensive.* **Response #738-217:** Assessments of stream morphology consider the additional flows that would be conveyed in South Boulder Creek and the resultant increase in sediment transport capacity. The analyses of stream morphology, included anticipated change in response to greater overall flows were supplemented in the FEIS. Additional assessments included sensitivity analysis of sediment supply and sediment transport equations and an assessment Phase 2 sediment transport. Historic data were

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		obtained and evaluated to quantify past observable changes in stream morphology and augment results obtained through numeric modeling. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #738-218*** *(ID 3854)**:*** *Section 4.2, page 4-202: The description of "diversions of water from the west slope" is not clear. The document states flow does not return to all tributaries diverted. Please explain the statement "there were minimum bypass flows at 11 of the 29 diversions structures in July 2006". Verify if these are administratively required minimum bypass flows or "spilling". This statement implies that the remaining 18 diversions removed all the water, rather than "nearly all the streamflow" that is stated in the DEIS. Please verify. There are no data to show that seepage occurs from diversions structures "at all times when there is water in those structures". It could be possible that the stream is gaining at the diversion point. In fact, in the absence of surface water inputs from tributaries, flow recovery below the diversion would indicate that the reach was gaining and not losing water to seepage. Later, the DEIS states there is flow recovery downstream of diversions, and that diversion impoundment seepage provides for the recovery flows. If the impoundments are seeping and contribute to flow recovery, explain why nine streams are showing completely dry beds below diversions for the remainder of their channel length.* **Response #738-218:** Within DEIS Section 4.2, the paragraphs describing the minimum bypass flows at 11 of the 29 diversions were clearly attributed to the Masters Thesis of Julia McCarthy (McCarthy 2008) and were rechecked to

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		verify they are accurately summarized, or directly quoted, from that document. Nevertheless, because it is not clear whether the June 2006 bypass flows were equal to those administratively required, "minimum" has been deleted from that sentence in FEIS Section 5.4. FEIS Sections 4.6.4 and 5.4 also include additional analyses of stream flow changes in all the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and RFFAs. Additional groundwater data collected by the Corps in the fall of 2010 were described to further clarify the groundwater-surface water relationships downstream of Denver Water Diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater levels and stream interactions. The proposed Project would not change the existing bypass requirements of the diversion facilities on the West Slope streams. ***Comment #738-219*** *(ID 3855)**:*** *Section 4.2, page 4-203: DW's diversions cause all (rather than some as stated in the DEIS) diverted streams to have decreased flow, except for two streams that are augmented by diverting other streams. Some of the diverted streams do not go dry at "locations", rather they are dry for their entire length (entire reaches, not points) below the diversion until reaching a confluence. The document should display the current condition of the streams. Please define the term "small declines" in stream levels. Display the stage decline as a percentage relative to bankfull discharge. Most of these diverted streams are only several feet deep at bankfull. Show the effects of diversion of water on river stage under the existing condition (up to 65% native streamflow) and for the Project, with comparisons to native flows.*

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		Display the diversions by times of the year, as opposed to percentage of mean annual flow to show true effects at any point in time. The conclusion that there is no effect on groundwater levels outside of the limits of the diverted streams is not supported by any data. In fact, changing the hydraulic gradient (steepening it towards the diverted streams) could very easily depress the water table elevation in adjacent uplands. Using a budget approach, it is easy to see that if inputs are static or reduced, and outputs increase, the change in storage is negative. Because DW's diversion system rings the upper Fraser valley, the effects to groundwater are widespread rather than localized as suggested in the DEIS. Alternately, Darcy's Law for groundwater discharge shows that discharge increases as slope increases. **Response #738-219:** The DEIS statements questioned in this comment are basically correct as written, but were clarified to address the commenter's concerns. In the DEIS, "small declines" in stream levels are inferred from the model predictions of flow changes in Appendices H-1 through H-6, and the HEC-RAS hydraulic modeling results described in DEIS Section 4.6.1.2. FEIS Sections 4.6.4 and 5.4 also include additional analyses of stream flow changes in all the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and RFFAs. Additional groundwater data collected by the Corps in the fall 2010 were described to further clarify the groundwater-surface water relationships downstream of Denver Water Diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater levels and stream interactions.

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		Please refer to Comment IDs 3840 and 3842 for an explanation of the statement: “Because DW’s diversion system rings the upper Fraser valley, the effects to groundwater are widespread rather than localized as suggested in the DEIS.” ***Comment #738-207*** *(ID 3840)**:*** *Section 4.2, page 4-204: 1st sentence under Moffat Project Effects: the timing of additional diversions actually maximizes, rather than minimizes the effects to groundwater recharge. In dry years, there is little groundwater recharge because a higher proportion of the available water is used by evapotranspiration relative to wet years. There is less streamflow and overbank flooding, reducing floodplain groundwater recharge. It is in the wet years where substantial diversions are proposed, that most of the groundwater recharge occurs. Therefore, the timing of proposed diversions actually would significantly reduce groundwater recharge. The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser basin shows otherwise. For example, the DEIS Fraser basin water budget claims that groundwater discharge amounts to approximately 42,000 AF per year compared to 64,500 AF of surface flow out of the watershed annually. Thus, groundwater discharge is greater than 10% of the total water budget and about two-thirds of the total surface flow out of the basin. Groundwater discharge alone is more than double the amount of water DW hopes to firm up thru this Project. It is mentioned that the amount of groundwater recharge through streambeds is controlled by the infiltration properties of the streambed. Regardless of the permeability rate of mineral soils, water must be present in the channel for groundwater recharge to occur. DW proposes to increase the diversion duration, thereby extending*

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		both the length of time streambeds are completely dry as well as the physical length. The physical characteristics and therefore the amount of groundwater recharge contributed by streambed percolation would change because reduced high flows will allow vegetation encroachment on the channel bed. The analysis needs to provide data that support the statement that direct groundwater impacts would only occur in local areas around the existing diversions that take up to 85% of the native flow for most of the affected stream miles in the basin. Impacts to groundwater may occur anywhere streamflows are reduced at any time, all the way down to the Colorado River. Recharge of groundwater from unlined portions of the canals will only occur as long as the conveyance system is not encapsulated in pipes. Share what plans DW may have to convert the existing open canals to enclosed pipeline, resulting in elimination of seepage and groundwater recharge. Increasing the collection system efficiency could result in both beneficial effects, by reducing diversion of west-slope surface flows, and adverse effects, by reducing groundwater recharge. The analysis needs to depict these effects clearly. **Response #738-207:** The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water Diversion structures west of the Continental Divide. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River Basin and subdivides the watershed into areas

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		to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water Diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent USGS Technical Report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the Williams Fork watershed where there are other Denver Water Diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because these areas do not lie downstream of any Denver Water Diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Moffat Project. Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to the

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		Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt into the ground surface would not be altered by the Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the Moffat Project only has the potential to slightly reduce groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs.

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		A USGS Technical Report (Apodaca and Bails 1999) for the Fraser River Basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River Basin downstream of the Denver Water Diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving groundwater discharge (GWdb). The groundwater level contours also indicate that recharge occurs in higher elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease

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		by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. DEIS Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River Basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cfs) more than 80% of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop

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		about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. The comment also asserts that: The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser River Basin shows otherwise. For example, the DEIS Fraser River Basin water budget claims that GWdb amounts to approximately 42,000 AF/yr compared to 64,500 AF of surface flow out of the watershed annually. Thus, GWdb is greater than 10% of the total water budget and about two-thirds

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		of the total surface flow out of the basin. As described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic systems in each of the affected watersheds during these times. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. In this annual hydrologic budget, the inputs and outputs each total approximately 400,600 AF/yr for an average year. In this table, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999). The water budget table (DEIS Table 3.2-1) does not show what the comment suggests. In stating the groundwater discharge amounts to approximately 42,000 AF/yr, the commenter confuses groundwater underflow (GWua), with GWdb. In this hydrologic budget table, GWua represents flow out of the basin below the ground surface whereas GWdb is flow out of the ground surface (e.g., to streams). The comment adds 13,700 AF/yr of GWua to the amount of GWdb as stream base flow, 28,300 AF/yr, to arrive at the value of 42,000 AF/yr for GWdb. Rather, this table actually indicates that average annual GWdb to the stream base flow is about 28,300 AF/yr, or about 7% of the total water budget. The Moffat Project would not measurably affect GWdb that supports base flow because the proposed diversions would not substantially reduce groundwater levels or recharge rates for the reasons described above. The comment also reflects a misunderstanding of

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		the purpose of providing the simple water budget table and graphic in the DEIS. This information was intended to simply illustrate the hydrologic processes in the watersheds. They were included in the DEIS to help the interested public reader to generally understand the major hydrologic components and how they interrelate. To avoid the type of confusion expressed in this comment and the possibility for others to over-interpret the meaning of the hydrologic budget values, the water budget table (DEIS Table 3.2-1) and graphic are not included in the FEIS. ***Comment #738-200*** *(ID 3841)**:*** *Page 4-205, conclusion on groundwater effects: This conclusion is incorrect; although the Project may not be affecting upland recharge rates, the Project does accelerate groundwater discharge to gaining streams by increasing the hydraulic gradient from uplands to the riparian by lowering stream stages.* **Response #738-200:** As stated in DEIS Sections 4.1 and 4.2, the hydrologic system is dynamic and seasonal in nature. Although the Project would cause slightly lower peak flow stages in some of the streams below the Denver Water diversions during the high-runoff season, stream flows during the low flow seasons would not be reduced. The change in groundwater hydraulic gradients between upland and the riparian areas caused by the Moffat Project would be very small, and would only occur during the high-runoff season along some stream segments. Even during the season of maximum stream-level change, the potential changes in hydraulic gradients would be far less than the natural seasonal variability. The DEIS conclusion on groundwater effects is correct based on the data presented and reports cited within the DEIS, which include reports by the

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		USGS, monitoring data provided by Denver Water, PACSM results, HEC-RAS model results and independent assessments of that information by Corps' hydrogeologists. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Methods used to estimate changes in flood flows, water levels and wetted areas of streams are presented in DEIS Section 4.6. DEIS Appendix H-5 also provides a series of flow duration curves for a number of locations in the Fraser River watershed. The rationale for the conclusions on groundwater effects are described more thoroughly in the response to Comment ID 3840. Additional groundwater data collection was also be performed by the Corps to further assess the potential groundwater impacts. The water level data collected from the monitor wells and adjacent streams in the fall of 2010 was presented and evaluated FEIS Section 5.4. ***Comment #738-209*** *(ID 3842)**:*** *Section 4.2.7, page 4-213 and 214: If DW can mitigate west-slope groundwater impacts by "effectively evaluating the system components", we encourage them to do so then present the results in the FEIS. The impacts to groundwater are long-term permanent, rather than short-term because water is diverted completely out of the basin. The actual groundwater impacts amount to an irretrievable loss of groundwater recharge that ecosystems, and publics rely on. Show what mitigation would be considered for the west-slope water and sanitation departments reliant on groundwater that will experience future supply shortages and impacts to effluent discharge permits (disclosed in this DEIS).*

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		Groundwater is not understood as well as surface water; monitoring is needed in subsequent analysis as data presented in the DEIS are inadequate to characterize existing conditions or support the conclusions. **Response #738-209:** For the reasons described in the response to Comment ID 3840, the proposed diversions would cause negligible to minor direct impacts to groundwater levels along stream channels directly downstream of the diversion points during the proposed extended flow diversion period. Any such impacts would be limited to areas along stream channels directly downstream of the diversion points. Streambed percolation rates would decrease by only a very small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. The net effect on groundwater levels throughout the basin would be exceedingly minor because groundwater recharge rates would not be affected within the majority of the West Slope watershed areas. Consequently there would be only negligible to minor direct impacts to groundwater resources overall. DEIS Appendix H-5 provides hydrologic model output showing the minimal reductions in stream flow durations attributable to the Project. Flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with the runoff period in wet years. More than 80% of the time, there would be little to no change in flow (less than 1 cfs) at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow 70% to 80% of the time. Hydraulic modeling using HEC-RAS shows the changes in stream flows and flood inundation areas

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		at representative sites downstream of the diversion points. DEIS Section 4.6.1.2 provides an analysis of the interactions between stream flow changes and inundated areas in the affected drainage. Table 4.6-4 shows the predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level would drop only about 8 inches. This change would only be temporary, and would happen during the high-runoff season. Those HEC-RAS model results also show the peak wetted channel width at that location would shrink about 1.6 feet due to the Project during wet years. DEIS Figure 4.6-1 illustrates the very small change in stream width that would occur during the high-runoff period. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). This change would only be temporary, and would happen during the high-runoff season. During dry years, the Project would not divert additional stream flow at any points, and thus there would not be any effect on the groundwater levels or recharge rates along those streams during those years. Overall, the groundwater recharge and discharge rates within the potentially affected watersheds may change slightly during the seasonal high-runoff periods, but would not change substantially over the long term. Therefore, the minor impacts to groundwater are correctly described in the DEIS as being “short-term” rather than “long term permanent.” Additional groundwater data collection was also be

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		performed by the Corps to further evaluate the hydrologic interactions between groundwater and the potentially affected stream segments. Data collected from the monitor wells and adjacent streams in the fall of 2010 was presented and evaluated in FEIS Section 5.4. ***Comment #738-201*** *(ID 3843)**:*** *Section 4.5, Vegetation: The third issue bullet lists "Impact of reservoir inundation on rare plants or communities." This section discusses plant communities, but, as mentioned above, there is no discussion of effects to individual plant species in this section or in Section 4.8: Special Status Species and no reference to such an analysis. It appears that no analysis of effects for any individual plant species was done in this section. There are no additional available reports that might contain analysis for USFS Sensitive or rare/local concern plant species. See also General Comment at beginning of Chapter 4 comments, and Section 3.8.1.1 Gross Reservoir: Special Status Species above.* **Response #738-201:** Per consultation with the USFS, information regarding USFS Sensitive and rare/local concern plant species has been added to FEIS Section 5.10.1 based on surveys conducted by the Corps at Gross Reservoir in summer 2010. A Biological Technical Report has also been prepared that describes the results of surveys for these species and is included in Appendix G in the FEIS. ***Comment #738-210*** *(ID 3844)**:*** *Section 4.5: Plant species analysis: Except for federally listed plants potentially affected by water depletions, there is no environmental baseline or analysis for any plant species. The sections on vegetation discuss rare plant communities, but do not mention any individual plant species, although*

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		"Impact of reservoir inundation on rare plants or communities" is listed as a primary issue under the vegetation section in Chapter 4. **Response #738-210:** Per consultation with the USFS, information regarding USFS Sensitive and rare/local concern plant species has been added to FEIS Sections 3.7.1 and 5.7.1 based on surveys conducted by the Corps at Gross Reservoir in summer 2010. A Biological Technical Report has also been prepared that describes the results of surveys for these species and is included in Appendix G in the FEIS. ***Comment #738-211*** *(ID 3845)**:*** *Section 4.5.1.1, pages 4-230 to 4-232, Gross Reservoir: Third paragraph on page 4-231: The following statement is made: "The quarry site would not be revegetated because of exposed rock and lack of suitable soil for restoration efforts." The analysis needs to provide further discussion regarding whether this statement is intended to apply to alternative quarry sites that may be considered during the design phase (see Section 2.3.2.1 Gross Reservoir: Borrow/Embankment Materials p. 2-32). The analysis needs to disclose the information considered in arriving at this conclusion, and whether all available options for site rehabilitation were considered before dismissing revegetation. Measures to consider include: saving and storing topsoil and/or vegetation removed from the quarry or other affected areas; importing materials to use for site rehabilitation, with provisions for noxious weed prevention; or using a smaller portion of the proposed quarry area combined with alternative sites, perhaps changing the site rehabilitation potential.* **Response #738-211:** As described in FEIS Section 2.3.2.1, mitigation for the quarry site includes a range of techniques, such

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		as rock sculpting (shaping the exposed rock to mimic a natural rock face) and selective planting to break up the scale of the exposed area and soften the contrasts with adjacent areas. The use of rock staining would also be considered, provided a determination by Denver Water that its application would not create any water quality concerns. An additional mitigation measure has been added to FEIS Section 5.7.7 to address reclamation of the quarry site. The proposed quarry site and any alternative quarry sites would be located on USFS and Denver Water land. Denver Water would work with the USFS to ensure appropriate revegetation of these sites based on site conditions. ***Comment #738-212*** *(ID 3846)**:*** *Fourth paragraph on page 4-231: Water is a known dispersal mechanism for weed seeds. Discussion of noxious weed impacts needs to include increased potential for introduction and spread of weed species into newly disturbed areas around Gross Reservoir from DW's Moffat Collection system, including spread from known weed infestations in Grand County associated with the system. See also comments under Section 3.5.0.* **Response #738-212:** A discussion of the potential for water-borne dispersal of noxious weeds to Gross Reservoir from the West Slope has been added to FEIS Section 5.7.1. Small occurrences of ox-eye daisy were observed in 2010 along the edges of South Boulder Creek above the reservoir, apparently established from water-borne seed. The proposed Project would not increase the chance for water-borne dispersal of noxious weed seeds because water is presently diverted year round and no new water sources would be used. Additionally, as part of Denver Water's existing FERC

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		hydropower license for Gross Reservoir (Article 406 – conditions 107 and 108), Denver Water is required to submit an annual monitoring report for noxious plants. This report includes a list of the priority species and plans to eradicate these species from the FERC project area (which includes lands owned by the USFS and Denver Water). These weed control efforts involve the cooperation of the USFS and Denver Water, and are based on a list of noxious weeds developed by the USFS and the Colorado Department of Agriculture. ***Comment #738-202*** *(ID 3847)**:*** *Last paragraph on page 4-231: This paragraph discusses impacts on two PCA's; see note above under Section 3.7.1.1; these is now one PCA.* **Response #738-202:** These PCAs were combined after publication of the DEIS in October 2009. The information on CNHP PCAs has been updated in FEIS Section 3.10.1.1. ***Comment #738-174*** *(ID 3831)**:*** *Section 4.5.2.1, Gross Reservoir: Additional analysis is needed for plant communities potentially affected by project activities. Refer to Table 5: Plant Communities of Local Concern for the ARP in Appendix G comments for additional plant communities that need surveys and analysis.* **Response #738-174:** Per consultation with the USFS, information regarding USFS Sensitive and rare/local concern plant species has been added to FEIS Sections 3.7.1 and 5.7.1 based on surveys conducted by the Corps at Gross Reservoir in summer 2010. A Biological Technical Report has also been prepared that describes the results of surveys for these species and is included in Appendix G in the FEIS.

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		Comment #738-193 *(ID 3832)**:*** *Section 4.5.7, page 4-240 and 4-241, Mitigation and Monitoring: First bullet re: revegetation plan – A USFS botanist should be consulted to recommend and/or review seed mixes to be used on National Forest lands. Revegetation shall be in compliance with the Arapaho-Roosevelt National Forests revegetation policy for lands administered by the USFS. Second bullet re: temporary impact areas – Erosion matting, straw, soil amendment, or other measures may be needed to maximize revegetation success, especially in highly disturbed sites exposed to wind. If matting is used, use a product made of biodegradable material – not plastic - and a single layer, to avoid entrapping wildlife – such as coconut-straw erosion blankets described in Section 4.8.7 under Common Garter Snake on p. 4-305. Consult with a USFS botanist prior to using any soil amendments such as fertilizer, which can be favorable to noxious weeds. Also consult with a hydrologist and/or fish biologist if fertilizer use is considered, to ensure that any concerns regarding runoff of fertilizer into riparian areas or water bodies would be addressed. Fifth bullet re: weed management plan – coordination should include the USFS. Sixth bullet re: weed-free equipment – add that all forage products used on National Forest lands will comply with USFS Rocky Mountain Region Order No. 02-2005-01 requiring use of certified weed-free hay, straw, or mulch in all activities on National Forest lands." Add the following as mitigation: Consult with a USFS botanist regarding seed testing if revegetation will occur. Any seed used on NFS land on the project will be required to be tested for smooth brome, and "all states noxious weed seed exam" according to Association of Official Seed Analysts standards and will be certified by a Registered Seed Technologist or Seed Analyst as meeting the requirements of the Federal Seed Act (7 U.S.C. Chapter 37: Sections 1551-1611) and*

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		the Rules and Regulations of the Colorado Seed Act pursuant to 35-27-101 through 125, C.R.S. (1993 Supp. as amended by Senate Bill 93-17). Seed used shall be noxious weed seed free. Add the following as mitigation: Include the following, or equivalent language as agreed to by the USFS, in contract specifications for revegetation: Seed mixes will be approved by FERC and USFS. If a species in the seed mix is not available, the Contractor shall provide written evidence from three seed vendors that the species is not available. With written approval, the mix by be adjusted and a new species may be substituted after consultation with FERC and the USFS. Seed lot tags and seed shall be available to FERC and USFS at least one month prior to seeding, for testing that may be performed by USFS. If noxious weed seeds or smooth brome seeds are found, seed may be rejected and the Contractor shall be responsible for replacement cost of seed. Add a mitigation to address transport of weeds from DW's collection system components in Grand County to Gross Reservoir. Treatment of weeds should be included with other measures as appropriate. **Response #738-193:** The Corps appreciates the recommended mitigation measures from the USFS, which have been added to FEIS Section 5.7.7. One mitigation measure identified in the comment was not added to the FEIS. The mitigation requiring weed control at Denver Water's Collection System was not included because Denver Water does not propose any construction activities at those sites and already performs weed management at them. ***Comment #738-194*** *(ID 3833)**:*** *Section 4.6, Riparian and Wetland Areas: Fens: There is neither discussion of surveys to determine presence or absence of fens, nor evidence of*

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		communication with any experts who might provide further information on fens in the Project area. Furthermore, there is no analysis of impacts to fens, which are a conservation priority for the USFS and for the FWS Mountain-Prairie Region, and are considered a Category 1 wetland by the FWS. This is particularly important in the Williams Fork area, where fens are present (documented in the DEIS Chapter 3) at both river segment sample sites selected by the ACOE to represent effects to other project river segments. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology. **Response #738-194:** Please see the response to Comment ID 3605. ***Comment #738-195*** *(ID 3834)**:*** *Page 4-245, Stream Flow Changes, 2nd and 3rd para.: "Although major impacts to riparian systems in the West have been documented as a result of stream flow modifications (Stine et al. 1983), these are usually in situations where diversions resulted in complete dewatering of the stream, profound changes in flows, or major modifications to stream hydrology resulting from gravel mining or other types of disturbance. This level of flow change or modifications to stream channels is not predicted to result from the Moffat Project. This conclusion is further supported by the fact that the Project would have little or no impact on low flows, which are typically important for maintaining the relatively high water availability on which riparian plants depend for growth and survival (Shafroth and Beauchamp 2006)." Although the proposed project may not result in complete dewatering of stream channels, it is only because the existing diversion system already completely dewaters, for extensive periods, those streams (all but 10) that are not protected with bypass flow agreements.*

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		Response #738-195: The current diversions capture all or most of the natural flow in the tributaries that lack bypass flows, for large portions of the year. However, about two-thirds of the total annual flow occurs during June and July when the percentage of water diverted is lower, and these high flows during the growing season appear to help maintain the existing riparian vegetation. In addition, many of these streams exhibit recovery downstream of the diversion from GWdb or tributary flows (McCarthy 2008), and wetlands and riparian vegetation along the streams may be supported by groundwater. Additional analysis of the existing conditions of the Fraser and Williams Fork tributaries has been added to FEIS Section 4.6.8 and a comparison of flows under Current Conditions and with each of the alternatives has been added to FEIS Sections 3.8 and 5.8. Diversions would increase at all of the modeled nodes for the Fraser River and Williams Fork tributaries, including increases in diversion during both periods of high flows and low flows. ***Comment #738-196*** *(ID 3835)**:*** *First sentence under Table 4.6-3, page 4-251: "Given the conclusion that the Project would have little or no impact on groundwater levels, it can also be concluded that the Project would have little or no impact on riparian vegetation dependent upon groundwater. " This conclusion does not appear to be supported by the analysis provided. Refer to comments under Section 4.2 p. 4-203 through 4-205 for further details.* **Response #738-196:** The DEIS conclusion on groundwater effects is correct based on the data presented and reports cited within the DEIS, which include reports by the USGS, monitoring data provided by Denver Water, PACSM results, HEC-RAS model results and

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		independent assessments of that information by Corps hydrogeologists. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in Section 4.1 of the DEIS. Methods used to estimate changes in flood flows, water levels and wetted areas of streams are presented in Section 4.6 of the DEIS. Appendix H-5 of the DEIS also provides a series of flow duration curves for a number of locations in the Fraser River watershed. The rationale for the conclusions on groundwater effects are described more thoroughly in the response to Comment ID 3840. ***Comment #738-197*** *(ID 3836)**:*** *Section 4.6.1.2, River Segments: Lower Fraser River, pages 4-256 and 4-257: Refer to comment under Section 3.6.5.1: Upper Fraser River: Fraser Canyon Reach: FR2 – Fraser River Below Tabernash regarding habitat actually occupied by the shrubby cinquefoil/tufted hairgrass plant association, and whether a fen is present at sample site FR2. The first paragraph on p. 4-257 mentions the shrubby cinquefoil and that it may expand into sites previously occupied by Geyer's willow, but does not discuss impacts to the shrubby cinquefoil as it currently occurs. Subsequent analysis needs to discuss this impact. In addition, this section should discuss impacts to a fen at sample site FR2 if one is present. Further, as stated previously, Chapter 3 Section 3.0: Focus River Segments on p. 3-5 states: "Data for the focus reaches were evaluated and extrapolated to the overall study area." It does not appear that this was done relative to fens.* **Response #738-197:** FR2 was revisited in September of 2010. The areas mapped as the shrubby cinquefoil/tufted hairgrass

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		plant association occur on the northeast side of the river at distances of about 30 to 300 feet away from the river, and extending outside of the study area. The shrubby cinquefoil/tufted hairgrass association is an open shrubland of shrubby cinquefoil and silver sage, with mostly mesic meadow species. It has much more mountain rush than tufted hairgrass, and it might fit better in the shrubby cinquefoil/mountain rush shrubland association. It does not have wetlands hydrology or soils under current circumstances, and is neither a wetland nor a fen. Changes in flows in the Fraser River are not likely to affect this association. A reconnaissance survey for fens was conducted along portions of the Fraser River and its tributaries and portions of the Upper Williams Fork in September of 2010, and the results are provided in FEIS Section 3.8.5, along with an analysis of impacts to fens in Section 5.8.1.2. ***Comment #738-198*** *(ID 3837)**:*** *Williams Fork River, page 4-257: As noted above, Chapter 3 Section 3.0: Focus River Segments states "Data for the focus reaches were evaluated and extrapolated to the overall study area." It does not appear that this was done for environmental effects to fens in Chapter 4, as the word "fen" does not occur in the chapter. USFS Wildlife Biologists believe fens may occur in many locations along the Williams Fork, based on field experience. The USFS is not aware of any formal fen surveys in the Williams Fork area. There is no mention in the DEIS of consultation with experts in fens who may be able to provide information regarding existing fens and/or the likelihood of additional fens occurring in the Project Area, particularly in the Williams Fork where fens occur at both sample sites. One such expert is Dr. David Cooper, a wetlands researcher from Colorado State University who has published*

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		scientific papers on fens, including research in Rocky Mountain National Park (Cooper et al. 1998). Cooper and others concluded; "Fens in this region do not appear to be sustainable under the drought conditions produced by ditches, water diversions, or ground-water pumping, all of which would lower water tables." In addition to fens being a high priority for protection for the USFS, the FWS Mountain-Prairie Region has made conservation and protection of fens one of their wetland priorities. Furthermore, the FWS Mountain-Prairie Region has determined that all functioning fens fall within their Resource Category 1, with a goal of no loss of existing habitat value and that every reasonable effort should be made to avoid impacting these habitats. First Paragraph: Impacts to the fen at sample site WF2, described in the second paragraph on p. 3-152, are not mentioned here and should be analyzed in detail. Fens are a unique, irreplaceable resource and are sensitive to changes in hydrology. Second Paragraph: The discussion of sample site WF1 does not address potential impacts to the large fen wetland described at the site on p. 3-150 in the partial paragraph above Table 3.6-10, which describes a fen at the site and states that fens are classified by the USFS as resources deserving special protection. Impacts to the fen at sample site WF1 should be analyzed in detail. **Response #738-198:** A reconnaissance survey of fens was conducted in along portions of the Fraser River and its tributaries and portions of the Upper Williams Fork in September of 2010, and the results are provided in the FEIS in Section 3.8.5, along with an analysis of impacts to fens in Section 5.8.1.2. Reductions in stream flows in average and wet years are not expected to adversely affect fens. WF1 and WF2 (Williams Fork) were both revisited in

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		September 2010, and more information has been added to the discussion of these sites. The wetland on the southwest side of WF1 appears to have been mischaracterized when it was identified as a fen. No areas of organic soil were observed, and the wetland was mostly dry in mid-September. Site WF2 has a large fen on the southwest side that had both saturated soils and ponded water in mid-September. No areas of seepage or drainage were observed where it paralleled the river. ***Comment #738-203*** *(ID 3838)**:*** *Section 4.6.7.1, page 4-269, Compensatory Mitigation: Reference is made to Appendix M for riparian mitigation measures. Mitigation proposed in Appendix M for Riparian Vegetation consists of establishing riparian vegetation around the shoreline of an expanded Gross Reservoir. Although this may compensate for some riparian areas proposed for inundation, it will not compensate for all of the riparian areas or rare plants and plant communities that will be inundated and permanently lost. Shoreline vegetation will establish on its own; however, planting appropriate species may help it establish sooner. An additional mitigation is recommended for Riparian Vegetation to provide for protection of riparian areas with comparable ecological values to those being destroyed, by means such as purchase and donation to the USFS or funding restoration of comparable areas that have been degraded.* **Response #738-203:** Denver Water's Conceptual Mitigation Plan is included in FEIS Appendix M. Where required, mitigation will be prepared as part of a Section 404 Permit. ***Comment #738-199*** *(ID 3839)**:*** *Section 4.6.7.2, pages 4-269 and 4-270, Mitigation*

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		During Construction: This section should include mention of, or reference to, limiting vehicle operation to designated construction areas as stated in the first bullet under Section 4.7.7 Mitigation and Monitoring: Wildlife Habitat on p. 4-386. **Response #738-199:** FEIS Section 5.9.7 includes a mitigation measure to limit vehicle operations to designated construction areas. ***Comment #738-170*** *(ID 3821)**:*** *Section 4.7, Wildlife habitats and ARP Forest Plan: There is no discussion of important wildlife habitats relevant to the ARP Forest Plan, including old growth, effective habitat, interior forests, and corridors. There is no discussion about consistency with the Forest Plan regarding these habitats or other Forest Plan goals, objectives, standards, and guidelines that apply to wildlife, botany, and noxious weeds.* **Response #738-170:** Information on old growth, effective habitat, interior forest and corridors was obtained from USFS and has been added to the analysis of impacts at Gross Reservoir (FEIS Section 5.9.1.1). Some information on the Project's consistency with the Forest Plan is provided in FEIS Section 5.16, and additional information has been added to the analysis of biological resources. ***Comment #738-171*** *(ID 3822)**:*** *Section 4.7.1.1, pages 4-272 to 4-275, Gross Reservoir: There is no discussion of effects to USFS Managed Areas and State Wildlife Areas, although the affected environment for these areas was described in Chapter 3. Discussion of environmental effects to USFS Managed Areas should include important wildlife habitats included in the ARP*

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		Forest Plan: existing old growth, old growth development areas, old growth retention, effective habitat, interior forest, and forested and open corridors. These discussions should include quantification of amounts of these habitats expected to be impacted by the project. Discussions should also include an analysis of consistency with the ARP Forest Plan and detailed discussion of inconsistencies, including Forestwide Goals and Objectives; Operational Goals, Standards and Guidelines; and applicable Standards and Guidelines based on Management Area Direction and Geographic Area Direction. **Response #738-171:** Gross Reservoir is not included in the current list of Colorado State wildlife areas (Colorado Division of Wildlife 2010-2011 Colorado State Wildlife Areas: http://wildlife.state.co.us/RulesRegs/RegulationsBrochures/). Gross Reservoir is owned and operated by Denver Water; CPW stocks fish. Please also see the response to Comment ID 3821. ***Comment #738-189*** *(ID 3823)**:*** *Raptors, page 4-274: This section contains broad statements about raptors and does not acknowledge the many differences in biology and therefore effects. Differences in biology among raptor species include: different habitats used for nesting and foraging; different nest types and locations, such as cavity nests, stick nests in trees, stick nests on cliffs, and use of cliff ledges with no nest structure; use of alternate nest structures, or not; different prey species; use of the project area during different seasons; and differences in migratory habits. Differences among species, and therefore potential effects, are not acknowledged or analyzed. It is not clear whether the effects discussed in this section are being applied to owls, which are not specifically*

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		mentioned, although owls are mentioned in the corresponding section in Chapter 3. Discussion should be included about whether reservoir expansion will inundate osprey platforms installed by the USFS. First paragraph: The fifth sentence states that impacts can be avoided. Please state if they will be. Reference should be made to the mitigations in Section 4.7.7 on p. 4-286 regarding nest surveys, and how implementation of these would affect impacts to nesting raptors. Impacts may not be completely avoided, because surveys do not detect 100% of nesting birds, particularly small songbirds. A more accurate statement would be that "Impacts would be avoided or minimized by use of pre-construction surveys…." Second paragraph: The first sentence describes disturbance around an active raptor nest as an indirect impact – this would be considered a direct impact because it occurs at the same time and place as project activities. The last sentence cites CDOW recommendations for buffer zones for red-tailed hawk and golden eagle nests, but does not mention buffer zones for other raptors that may occur in the area. Referring to the CDOW document, "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors," revised 2/2008, may be a more efficient way of covering buffer zones here. Third paragraph: The last sentence in this paragraph singles out northern goshawk regarding long-term loss of habitat for forest birds. Clarification that this means accipiters, if it does, would be helpful. This sentence jumps to the conclusion that reduction of nesting and foraging habitat would likely result in long-term population reduction. No information is provided to support this conclusion, such as quantity and quality of nesting and foraging habitat in the area compared to anticipated loss of habitat, likelihood of occurrence during various seasons, size of home range relative to habitat loss, or whether any occurrences have been documented. In addition, it is not clear whether

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		this statement is intended to apply to any other "forest bird" species such as sharp-shinned hawks or Cooper's hawks. Other Birds, page 4-275: Second paragraph: The second sentence states the nesting season of migratory birds and waterfowl as generally May through July. This is inconsistent with the first Mitigation and Monitoring bullet under Raptors on p. 4-286 which uses more appropriate nesting season dates of March 1 through July 31. **Response #738-189:** The following edits have been made to Section 5.9 of the FEIS: • More information has been added regarding impacts to different raptor species and groups and is partially based on the field work conducted by the Corps in the summer of 2010. • An assessment of impacts to the osprey nesting platforms. • The analysis of impacts to raptors and other migratory birds has been modified to include reference to the mitigations in DEIS Section 4.7.7 (FEIS Section 5.9.7). The words "avoided or minimized" have been added. • Disturbance of raptor nests was changed to be a direct impact. The CPW citation for recommended buffer zones was incorporated. • The paragraph has been modified to refer to other accipiters. The sentences regarding impacts to northern goshawks have been changed to reflect the results of surveys for northern goshawk at Gross Reservoir. The DEIS conclusion that northern goshawk populations would be adversely affected has been removed from the FEIS. • The nesting season dates for other birds have

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		been changed to March 1 through July 31. ***Comment #738-172*** *(ID 3824)**:*** *Section 4.7.1.2, page 4-276 Sensitive Areas: Table 4.7-3, same comment as under Section 3.7.1.1 above re: p. 3-173 – Winiger Gulch and South Boulder Creek above Gross Reservoir are a single PCA according to current CNHP data.* **Response #738-172:** These PCAs were combined after publication of the DEIS in October 2009. The information on CNHP PCAs has been updated in FEIS Section 3.9.1.1. ***Comment #738-190*** *(ID 3825)**:*** *4.7.7, page 4-286, Wildlife Habitat: First and second bullets – These measures should reference Section 4.6.7.2 Mitigation during Construction pp. 4-269 and 4-270 for further details. Third and fourth bullets – These measures should reference Section 4.5.7 Mitigation and Monitoring for guidance and further specifics regarding revegetation and restoration. The USFS recommends adding a mitigation providing for replacement of the winter concentration areas and severe elk winter range that will be inundated and permanently lost. This could be accomplished by protecting lands with comparable value as elk winter range that may be vulnerable to future development, by means such as purchasing and donating land to the USFS. Raptors, First bullet: Second sentence - "… nest surveys would be conducted prior to construction to ensure that no active nests are present in or near the construction footprint." As discussed under Section 4.7.1.1 First Paragraph above, nesting surveys do not detect 100% of nesting birds. A variety of bird species may nest in the project area with differences in nesting seasons, nest types and locations, appropriate survey methods, and likelihood of detection during surveys. Conducting surveys will help to minimize impacts to nesting birds but is unlikely to ensure avoidance of*

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		impacts. Second bullet: May 1 through June 1 is not inclusive enough for the multiple raptor species that may occur in the area, including owls. Expand the survey period to include appropriate survey dates for all raptor species that may occur. Clarify that owls will be included in surveys. Clarify what is meant by "annually during an appropriate season" – does this mean annually while construction and vegetation clearing are occurring? Depending on the timing of construction and vegetation clearing, surveys may be needed prior to the nesting season that construction and vegetation clearing begin. Third bullet: Buffer zones should be based on CDOW Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors, revised 2/2008. Migratory Birds, This paragraph states that land-clearing activities would be timed to avoid the breeding season to avoid impacts to active bird nests, as described for raptors. It is not clear whether this means that surveys would be conducted for all nesting birds if land clearing occurs during nesting season. Mitigation measures for raptors and migratory birds should be consistently stated and implemented – either avoid land clearing during nesting season, or provide for nesting surveys for all birds if land clearing occurs during nesting season. As noted above, nesting surveys would not insure that no nesting birds are impacted because surveys do not detect 100% of nesting birds. **Response #738-190:** The following mitigation measures have been added to Section 5.9.7 of the FEIS: • Mitigations measures identified for Vegetation (FEIS Section 5.7.7) and Riparian and Wetlands (FEIS Section 5.8.7) are referenced in the wildlife mitigation measures (FEIS Section 5.9.7). • Project impacts to elk habitat and appropriate mitigation measures are being evaluated with the

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		USFWS and CPW per the Corps' obligations under the Fish and Wildlife Coordination Act. • The raptor mitigation measures have been rewritten to address the USFS recommendations. • The migratory bird mitigation measures have been clarified. Land clearing activities would be avoided during the nesting season and nest surveys would be conducted if land clearing would occur during the nesting season. ***Comment #738-153*** *(ID 3826)**:*** *Section 4.8 Outdated references: The DEIS appears to be outdated – for example, references to CDOW databases and verbal communication are dated 2005; references to Colorado Natural Heritage Program (CNHP) data are from 2005; and the FWS Species List in Appendix G is from 2005. CDOW and CNHP data were updated in 2009; and the FWS list was most recently updated in May 2009. Most of this information is available on the internet. CNHP data does not currently include any data for Threatened, Endangered, USFS Sensitive, Proposed (TESP) or rare/local concern plants on the Forest since 2000, including new or revised element occurrences for plants, so is nine years out of date. There are hundreds of plant records not posted to the CNHP database. The USFS is currently entering these data into a new release of the USFS NRIS TESP database, with eventual full data migration to the CNHP database. In the meantime, the ARP Forest botanist can provide data specific to this project, on request.* **Response #738-153:** The DEIS was prepared prior to the 2009 updated lists. The FEIS analysis has been updated to include current lists of species and current references. The Corps requested data that is not currently

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		available through CNHP on November 22 and December 13, 2010. To date, the Corps has not yet received this data and therefore it is not included in the FEIS. ***Comment #738-154*** *(ID 3827)**:*** *Section 4.8, Special Status Plants: Based on the best available data, in conflict with USFS policy, this project is likely to adversely affect population viability on the Planning Unit (ARP) for three plant species, one USFS Sensitive species and two rare/local concern species. The project may affect viability on the ARP for two additional rare/local concern plant species. All five species were found near Gross Reservoir during surveys for the 2001 DW FERC licensing. Of the five, only the USFS Sensitive species is mentioned in the DEIS, in a species list table. It is not mentioned in the body of the DEIS as occurring and effects are not analyzed, and the remaining four species are not mentioned in the DEIS or appendices. Mitigations and salvage efforts are recommended under Sections 4.6.7.1 and 4.8.7; however, it must be recognized that even with mitigation measures, values and species may not be comparable. Some rare plants that would be inundated probably cannot be found elsewhere and purchased or protected.* **Response #738-154:** Sensitive species surveys were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in the Special Status Species sections of the FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in the Biological Technical Report. An analysis of species previously reported at Gross Reservoir in License Article 410 is also provided in the FEIS and

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		Biological Technical Report. The FEIS analysis includes an evaluation of population viability and USFS policies for sensitive plants. ***Comment #738-191*** *(ID 3828)**:*** *Section 4.8, Species lists: All species lists in the DEIS Chapter 3 and Appendix G are outdated and/or incomplete. This includes USFS Sensitive species, Management Indicator species, and rare/local concern plants.* **Response #738-191:** Please see the response to Comment ID 3549. ***Comment #738-192*** *(ID 3829)**:*** *Section 4.8, Special Status Species analysis: The Special Status Species sections in Chapter 3 and 4 are inadequate and missing important information. Chapter 3 contains one short paragraph and Chapter 4 contains less than one page that attempt to describe the affected environment and effects for SSS other than three federally and/or state-listed animal species that are discussed individually.* **Response #738-192:** Please see the response to Comment ID 3549. ***Comment #738-173*** *(ID 3830)**:*** *Section 4.8.1.1, Gross Reservoir: The Federally threatened Ute ladies'-tresses orchid and Colorado butterfly plant are not analyzed in this section for Gross Reservoir, based on exclusion in Appendix G Table G-1 and in the Biological Assessment submitted by the ACOE of Engineers to the FWS. The USFS requests additional documentation regarding these two species. Refer to comments on Appendix G, Table G-1 for specifics.* **Response #738-173:** Please see the response to Comment ID 3984.

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		Comment #738-228 *(ID 3874)**:*** *Other Special Status Species, pages. 4-291 and 4-292: This section should discuss, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), effects to all federal and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously addressed under Vegetation in Section 4.5, under Wildlife in Section 4.7, or earlier in Section 4.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species that should be considered. Discussion should include potential impacts from all aspects of the project, including vegetation removal, noise, truck traffic, blasting, road improvements and construction, recreation site relocation, etc. There is no discussion here of effects to any plant species including USFS Sensitive and rare/local concern plants that were found during surveys for the 2001 FERC relicense, which are documented and mapped in License Article 410. Populations of several of these plant species will be inundated with reservoir expansion, and this is anticipated to compromise population viability for Aralia nudicaulis, Cylactis (Rubus) arcticus, and Sanicula marilandica, and may compromise population viability for Carex deweyana and Carex sprengelii. See discussion under Section 3.8.1.1 above regarding baseline information that should be documented and considered for these and other species. This baseline information should be used to analyze effects to local, ARP, and range-wide populations. Analysis needs to clearly and fully disclose impacts to USFS Sensitive and rare/local concern plant species and include rationale leading to conclusions regarding impacts to population viability at the local, ARP, and range-wide levels. No reference is made to any additional reports or analyses that might contain either baseline information or analysis of*

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		effects for individual plant species. Any project that adversely affecting species viability for the above-mentioned plants would be in conflict with the following USFS policy: USFS MANUAL (FSM), NATIONAL HEADQUARTERS (WO), Washington, DC FSM 1900 – planning, chapter 1920 - land management planning, Amendment No. 1900-2006-2, Effective Date January 31, 2006 1926.15 – Resource Integration Requirements When Using Planning Regulations in Effect before November 9, 2000 13. Ensure the plan provides for the kinds, amounts, and distribution of habitat needed for recovery of threatened or endangered species and needed to maintain viable, well-distributed populations of all existing native and desired nonnative species. And FSM 2600, Wildlife, Fish and Sensitive Plant Habitat Management, Amendment No. 2600-95-7, Effective Date June 23, 1995. 2670.22 - Sensitive Species. 2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on NFS land. Second paragraph: Noise and construction disturbance are discussed as indirect impacts. These are considered direct impacts because they occur at the same time and place as project activities. Third paragraph: Northern goshawk is mentioned here and also under Wildlife in Section 4.7.1.1 on p. 4-275. Effects should be analyzed in one section and referenced in additional sections as appropriate. **Response #738-228:** The list of species addressed in the analysis has been updated in the FEIS using the lists provided by USFS (Appendix G). Species that are likely to occur or be affected by the Project are addressed in the FEIS Section 5.9. Additional information on these species is partially based on surveys conducted by the Corps in the summer of 2010 and is provided in

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		the Special Status Species Technical Report (Appendix G). The analysis addresses all types of impacts. Sensitive species surveys, including Northern goshawk, were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in the Special Status Species Technical Report Appendix G). An analysis of species previously reported at Gross Reservoir in License Article 410 is also provided in the FEIS and Special Status Species Technical Report. The FEIS analysis includes an evaluation of population viability and USFS policies for sensitive plants. The word "indirect" was removed in the FEIS (Section 5.10.1.1) In the FEIS, impacts to Northern goshawk are discussed in the Special Status Species (Sections 3.10 and 5.10) and are referenced in the wildlife sections (Sections 3.9 and 5.9). ***Comment #738-155*** *(ID 3875)**:*** *Section 4.8.1.2, River Segments There is no discussion in the EIS concerning the impacts to Preble's habitat on the North Fork upstream of the confluence with the South Platte. Occupied habitat has been identified in the North Fork of the South Platte and more occupied habitat is likely to be identified during subsequent surveys. The EIS includes a determination of "may affect, but unlikely to adversely affect" for Preble's (p. 4-294) on the South Platte based upon relatively small changes in flow during average and wet years. However, flow changes appear to be more substantial on the North*

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		Fork upstream of the confluence with the South Platte. Show how flow changes in the proposed action will affect the Preble's mouse habitat on the North Fork. **Response #738-155:** Please see the response to Comment ID 3622. ***Comment #738-176*** *(ID 3876)**:*** *River Otter, page 4-295: The following statement is presented: "Flow changes are expected to have minor or negligible impacts on riparian habitat and fish populations, and impacts to river otter would be negligible." As mentioned in our comments above on riparian and wetland areas (p. 4-251), the analysis presented does not appear to support conclusions of little or no impact to groundwater or groundwater-fed riparian vegetation. This section on river otter does not distinguish groundwater-fed vs. streamflow-dependent riparian vegetation (see also comments to Section 4.6, p. 4.245) Otters use waterways and banks in addition to riparian habitat, and this is not mentioned in the effects analysis. For example, the analysis does not consider other potential impacts including changed access to winter dens that may occur with lower water levels, such as den entrances formerly under water becoming exposed to ambient air; and changes in water depth that could influence freeze-thaw cycles and access to prey. Refer also to Section 4.8.7 comments re: adding mitigation for DW to partner with CDOW for river otter surveys.* **Response #738-176:** More information has been added to the analysis of impacts to river otter (FEIS Section 5.10) and to riparian vegetation (FEIS Section 5.8). ***Comment #738-204*** *(ID 3877)**:*** *Boreal Toad, page 4-295: The following statement is presented: "Flow changes are expected to have minor or negligible impacts on riparian habitats and*

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		impacts to boreal toad habitat would be negligible." As mentioned in our comments above on riparian and wetland areas (p. 4-251), the analysis presented does not appear to support conclusions of little or no impacts to groundwater or groundwater-fed riparian vegetation (see also comments to Section 4.6, p. 4.245) This section on boreal toad does not distinguish groundwater-fed vs. streamflow-dependent riparian vegetation. In addition, boreal toad breeding sites occur near the main of the Williams Fork, and the analysis should consider whether flow changes could lower water tables adjacent to the Williams Fork main stem that support breeding populations of boreal toads. Refer also to Section 4.8.7 comments re: adding mitigation for DW to collaborate with CDOW for boreal toad monitoring. **Response #738-204:** More information has been added to FEIS Section 5.8 to discuss the relative contributions of groundwater and stream flow in supporting riparian vegetation. The relative magnitude of the impacts is still considered minor or negligible. More information has been added to the analysis of boreal toad impacts along the Upper Williams Fork River FEIS Section 5.10.1.2. The boreal toad breeding ponds are isolated from the Williams Fork River and supported by a combination of tributary flow and groundwater, and are unlikely to be adversely affected by flow changes. Therefore, special mitigation measures for boreal toad are not warranted. ***Comment #738-205*** *(ID 3878)**:*** *Other Special Status Species, page 4-295: This section should discuss, and/or reference in the appropriate table in Appendix G (more specifically than the general reference to Table G-3), effects to*

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		all federal and state listed, USFS Sensitive, CNHP-tracked, and other species of local concern that have not been previously address under Vegetation in Section 4.5, under Wildlife in Section 4.7, or earlier in Section 4.8 and may occur in the project area or be affected by the project. Refer to comments under Appendix G for current lists of species that should be considered. First paragraph/sentence: "Flow changes in other Project river segments are unlikely to affect other special status species because the flow changes would not noticeably affect habitat for aquatic or riparian species." Based on general hydrology comments and comments specific to Section 4.1, p. 4-9 and 4-245, it appears that further analysis regarding flow changes is needed in order to either support this statement or include additional analysis for "other special status species" that may be impacted by flow changes. **Response #738-205:** The list of species addressed in the EIS analysis has been updated using the lists provided by USFS. Species that are likely to occur in the Project area or be affected by the Project are addressed in the FEIS text, and other species are identified in Appendix G. A detailed analysis, including reference to conservation assessments and other current relevant literature, is provided in a new Special Status Species Technical Report. The Corps conducted analysis in the fall of 2010 to further evaluate the interactions of stream flow and groundwater on riparian and wetland areas and wildlife habitat in the Fraser Valley. The results of this analysis are included in FEIS Sections 5.8 and 5.10. ***Comment #738-156*** *(ID 3879)**:*** *Paragraph/Sentence under Other Special Status*

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		Species bullet, page 4-296: This states "Reductions in bypass flows along tributaries of the Fraser River would not affect special status species, because no special status species are expected to occur in the affected stream reaches." Discussion should be included for special status plant species that occur in riparian and wetland areas and any other special status animal or plant species that may occur. This statement conflicts with brief discussions about river otter and boreal toad on the preceding page, where they are described as occurring or potentially occurring along the Fraser River. **Response #738-156:** This discussion has been rewritten for FEIS Section 5.10 based on field surveys for the species conducted by the Corps in the fall of 2010. ***Comment #738-208*** *(ID 3880)**:*** *Section 4.8, Environmental Consequences for Special Status Species: The effects discussion for SSS is confusing as in two different places "other special status species" are discussed. The effects discussion for special status fish species is incomplete, and inadequate. Include discussion on Rocky Mountain Capshell snail, lake chub, mountain suckers, Colorado River cutthroat trout, and update discussion on greenback cutthroat trout with new information presented in this document* **Response #738-208:** "Other Special Status Species" is addressed separately for Gross Reservoir, the river segments, Leyden Gulch Reservoir site, and other components of the alternatives. More information has been added to the analysis of Colorado River cutthroat trout and GB cutthroat trout in FEIS Section 5.10. Rocky Mountain capshell snail, lake chub and mountain sucker are not known

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		to occur in the study area and are therefore not discussed in the FEIS. However, they have been added to list of special status species considered for EIS analysis (Appendix Table G-5). ***Comment #738-229*** *(ID 3881)**:*** *Page 4-296 "Flow changes would have negligible or minor effects on habitat for special status aquatic species. Changes would occur downstream of Colorado River cutthroat trout occupied habitat." Show how the flow changes have minor or negligible effects. Because fish are able to move downstream and they could occupy habitat downstream of diversions (as they do in a number of tributaries). Again, it is not just changes in flow that affect SSS, the possibility of entrainment into the DW system should be discussed. "Reductions in bypass flows along tributaries of the Fraser would not affect special status species, because no special status species are expected to occur in the affected stream reaches." This statement is misleading to the reader. There is evidence, although anecdotal, indicating that mountain suckers have been found in the Fraser River. Greenback cutthroat trout and Colorado River cutthroat trout are expected to occur in affected stream reaches because they are mobile organisms and could potentially be found downstream of the diversions. In addition to USFS Sensitive and federally protected species, Forest management indicator species are also known to occur in affected stream reaches above and below the diversion points. Entrainment and stranding of fish has been observed at a number of diversion sites. This should be discussed. In addition to the reductions in flows, the mere presence of the diversion itself may affect individual fish. All of the diversions operated by DW are located in occupied habitat, and none of these diversions are screened, which is allowing entrainment of fish into the System. Special status fish could be entrained, and lost to*

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		the local population. **Response #738-229:** A summary of existing Colorado River cutthroat trout populations (including GB cutthroat trout lineage populations) is provided in Hirsch et al (2006) Range-wide Status of Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*). All of the Colorado River cutthroat trout populations in the Fraser and Williams Fork tributaries from which water is diverted are only identified above the diversions. The diversions are mostly mapped as complete or partial barriers, and all of the populations are described as isolated with the exception of North, Middle and South Fork Ranch Creek, which are considered weakly connected. Fish that move downstream of the diversion are therefore generally lost to the populations above the diversions. The source populations above the diversions would not be affected by the flow changes, which was why impacts were described as minor or negligible. The diversions do not include screens to prevent entrainment, and entrainment may occur. The Project alternatives do not include any physical modifications to the diversion structures or operations with the exception of increased water diversions, and the diversion structures are therefore are not analyzed in the EIS. The risk of entrainment is expected to remain the same as under existing conditions for Moffat Collection System operations. The Corps is not aware of any data documenting occurrence of mountain sucker in the Project area. It is therefore not discussed in the text of the FEIS, but has been added to the list of special status species considered for analysis (Appendix Table G-5). The FEIS analysis was updated to include the

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		current list of USFS MIS. Species that may be affected by the Project are addressed in FEIS Sections 3.9 and 5.9. ***Comment #738-231*** *(ID 3882)**:*** *Section 4.8.7, Mitigation and Monitoring: The following measures are recommended for river otter and boreal toad: DW will partner with the CDOW to support annual river otter surveys and ongoing boreal toad monitoring efforts. The following measures or a combination of them are recommended to mitigate, as much as possible, anticipated impacts to population viability for the following special status plant species discussed under Section 4.8.1.1 above: Aralia nudicaulis, Cylactis (Rubus) arcticus, Sanicula marilandica, Carex deweyana, and Carex sprengelii. The measures are listed in order of USFS priority and effectiveness, and would also apply to any additional populations of these or other special status plant species found prior to or during project implementation. 1. Avoid impacts where possible. For example, if impacts would occur from construction activities, weed treatment, recreation site location, or other project activities that could be adjusted, move or otherwise adjust project activities to avoid impacts to populations. 2. Conduct additional surveys to locate an adequate number of plants of each species that are secure/protected, to remove a viability issue. Surveys would need to include surrounding areas, primarily on the Boulder Ranger District but could include other protected lands. 3. Implement protection measures at other known sites that would help to secure viability. For populations of Aralia nudicaulis, Cylactis (Rubus) arcticus, Sanicula marilandica, Carex deweyana, and Carex sprengelii and any additional populations of these or other special status plant species found prior to or during project implementation, the following measures are recommended as salvage*

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		efforts for populations to be permanently destroyed by inundation or other project activities where impacts are unavoidable. All three are recommended to be implemented concurrently. 1. Collect and curate abundant plant specimens, photographs, and in situ data prior to local site extirpation. 2. Transplant plants into suitable habitat, upstream of populations to be inundated. Probability of failure is high, and plants may not survive beyond a few years. 3. Collect seeds, grow them out, and plant resulting plants somewhere else in suitable habitat. Probability of failure is high due to factors such as species (for example Cylactis arcticus) that produce seeds infrequently and non-viable seeds being produced and collected. Also include in mitigations re: salvage efforts: For salvage efforts 2 and 3 above, coordinate with the USFS to develop measures of success in the first two full growing seasons as indicated by monitoring, and provisions for what constitutes reasonable efforts expended. Add the following mitigation: If any USFS Sensitive plant or animal species or rare/local concern plant species of concern are found in the project area prior to or during implementation, consult with appropriate USFS specialists to determine the appropriate mitigation or avoidance action, which may include timing restrictions, relocation of specific project activities, or other measures. A measure or measures should be added providing for additional surveys for special status wildlife and plant species in all areas potentially impacted by project activities that have not been adequately surveyed to date. This may include, but would not be limited to all areas potentially affected by inundation, vegetation removal, staging, recreation site relocation, road improvement and construction, helispots, and quarries or other borrow activities. **Response #738-231:** River Otter – River otters occur along the Fraser,

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		Colorado, and Blue rivers, but the tributaries of the Fraser River and the Upper Williams Fork River are not part of their overall range (NDIS 2011). Flow changes would have minor or negligible impacts on riparian habitats along these rivers (FEIS Section 5.8), negligible to beneficial impacts to fish in the Fraser River, and no effect to the fish community in the Colorado and Blue rivers (FEIS Section 5.11). In addition, river otters choose dens opportunistically and often use beaver bank dens, dams and lodges, and are highly mobile (Boyle 2006a, b). Based on these considerations, impacts would be negligible and would not affect distribution or abundance of river otter. Therefore, special mitigation measures for river otter are not warranted. Boreal toad - More information has been added to the analysis of boreal toad impacts along the Upper Williams Fork River FEIS Section 5.10.1.2. The boreal toad breeding ponds are isolated from the Williams Fork River and supported by a combination of tributary flow and groundwater, and are unlikely to be adversely affected by flow changes. Therefore, special mitigation measures for boreal toad are not warranted. Special Status Plant Species at Gross Reservoir - During tree clearing operations, locations of USFS special status plants should be marked in the field prior to clearing operations, with a buffer zone of at least 10 feet. No ground disturbing activities should occur within the marked populations or buffer zones. Hand cutting of trees may be preferential in some locations. The USFS (Popovich 2011) recommends the following additional mitigations for impacts to rare plants at Gross Reservoir: Wild sarsaparilla. Transplant 200 individuals from

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		affected sites to suitable nearby sites that would not be affected by inundation, or collect and distribute seed from affected sites. • Dewey sedge. Transplant all affected individuals to suitable nearby sites. • Sprengel's sedge. Transplant all affected individuals to suitable nearby sites. • Enchantress's nightshade. Collect and distribute seed to suitable nearby sites. Alternately, surveys may be used to document additional locations that would not be affected. • Tall blue lettuce. Collect seed from affected plants for two years and spread seed in suitable nearby unaffected habitat. • Maryland sanicle. Collect seed from affected plants and spread seed in suitable nearby unaffected habitat. Alternately, surveys may be used to document additional individuals that would not be affected upstream of the known location. • False melic. Collect seed from affected plants and spread seed in suitable nearby unaffected habitat. All sensitive and local concern plant species. Collect herbarium voucher specimens from affected populations, and provide them to USFS for distribution to herbaria. Ten specimen sheets should be collected for each species, to document their occurrence. ***Comment #738-232*** *(ID 3883)**:*** *Section 4.9.1.2, page 4.315: In general, past studies have indicated that available habitat for rainbow and brown trout is maximized between 20 and 250 cfs.*

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		On the North Fork of the South Platte flow changes predicted under the proposed action and "Full Use of the Existing System" will greatly exceed 250 cfs from June through September. The DEIS states on p. 4-315 "in the North Fork South Platte River, there would be 22% higher flows with the Full Use of the Existing System…the increase in flow would be in June through October, the growing season for many aquatic organisms. This would tend to worsen the effects of the already high flows in this stream and have a minor to moderate detrimental effect." **Response #738-232:** DEIS Section 4.9.1.2 is correctly quoted. The Corps notes the comment. ***Comment #738-233*** *(ID 3884)**:*** *Section 4-13, page 4-378: The White River National Forest manages special use permits for five commercial outfitters that operate trips on the Blue River between Dillon and Green Mountain Reservoirs. The DEIS seems to indicate that long-term impacts of the Proposed Action would be negligible. We disagree that the impacts to recreational boating would be negligible given the nature of the already short "boatable" season.* **Response #738-233:** The DEIS concluded that the difference between conditions associated with Full Use of the Existing System and Full Use with a Project Alternative (2032) would result in a negligible impact on boating. However, the DEIS also stated that Full Use of the Existing System, when compared to Current Conditions (2006), would result in a "long-term major impact" on boating on the Blue River. The FEIS has been reformatted to compare Current Conditions to Full Use with a Project Alternative (2032), which resulted in a revised impact discussion for recreational resources in FEIS Section 5.15.1.2.

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		Comment #738-234 *(ID 3885)**:*** *Table 4.13: The first column in this table compares available recreation days for minimum flows between 300 and 600 cfs. Current information indicates that this section of the Blue River is not floatable at flow rates less than 400 cfs. Please adjust your analysis to reflect this range of flows (400 – 600 cfs). Economic impacts to commercial outfitters should be disclosed in the DEIS. The Colorado River Outfitters Association report on commercial river use in the state of Colorado, 1988-2008, shows economic benefit of commercial use on the Blue River to be $825,804 in 2008.* **Response #738-234:** The most current information available at the time of the DEIS analysis was utilized in identifying minimum boating flows. In DEIS Section 4.15, the days for minimum and optimum flows were determined from several sources including the UPCO study, American Whitewater, and personal interviews with commercial raft guides and private kayakers. New information in the GCSMP indicates a minimum flow of 400 cfs for the section between Dillon Reservoir and Green Mountain Reservoir. As such, the Corps' analysis has been updated in FEIS Section 5.15.1.2 to reflect this range of flows. An analysis on the section of the Blue River below Green Mountain Reservoir to the confluence with the Colorado River was included in FEIS Section 5.15.1.2. Economic impacts to commercial outfitters were addressed in DEIS Section 4.17. ***Comment #738-235*** *(ID 3886)**:*** *Section 4.14.1.1, Existing Land Uses: First paragraph on page 4-393: This section states the following: "Conflicts with USFS management direction include minor, permanent impacts to wildlife and plant habitats (refer to Section 4.5 Vegetation, and Section 4.7 Wildlife) and temporary*

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		impacts to recreational objectives for the duration of Project construction." USFS Management Indicator Species are briefly mentioned on p. 4-275; however Section 4.7 does not contain analysis of any other potential conflicts with USFS management direction, particularly the Forest Plans for the three affected Forests. See comments under Section 4.7.1.1 above. **Response #738-235:** The MIS reflect the management priorities provided for wildlife by the USFS Forest Plans. The Corps conducted surveys for special status plant populations at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list (including MIS), scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.7.1 and 5.7.1, and are described in more detail in a technical report contained in FEIS Appendix G-2. The impacts by alternative are presented in FEIS Section 5.10, including an assessment of population viability in the ARNF adjacent to Gross Reservoir. Other potential conflicts with USFS management direction, particularly the Arapaho Roosevelt Forest Plan, are discussed in their respective DEIS sections (Sections 4.5 [Vegetation], 4.15 [Recreation], and 4.16 [Land Use]). ***Comment #738-237*** *(ID 3887)**:*** *Section 4.9, Environmental Consequences for Aquatic Biological Resources: The third paragraph on page 4-307 discusses indirect and direct impacts to aquatic resources. The DEIS states that, "Most of the impacts to aquatic resources would be indirect and long-term, through changes in stream flow or the suitability of the stream to support aquatic life. Direct impacts would be very limited and temporary and would be limited to disturbances of reservoirs or*

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		short sections of streams during construction." The effects of the action are potentially indirect on fish populations (if not completely dewatered) and direct on habitat. There are two things happening here that need to be discussed individually, the effects on habitat and fish populations. They should not be combined. **Response #738-237:** FEIS Section 5.11 has been revised to help make the distinction clear. ***Comment #738-236*** *(ID 3888)**:*** *Habitat simulation methods IFIM does not simulate habitat relationships, PHABSIM does. PHABSIM "is a specific model designed to calculate an index to the amount of microhabitat available for different life stages at different flow levels; whereas, IFIM is a general problem–solving approach employing systems analysis techniques" (Stalnaker et al. 1995).* **Response #738-236:** IFIM and PHABSIM are sometimes used interchangeably by some who are not familiar with the difference. Also, the term IFIM is more widely known by the public and was felt to be more recognizable to the public in an EIS. Therefore, the DEIS was not always precise in the use of these terms. This terminology has been changed to the correct use in the FEIS. ***Comment #738-238*** *(ID 3889)**:*** *Life stages of Fish and Periodicity and Assumptions of Impact Analysis sections: This information needs to be referenced. There is no discussion of critical habitat types modeled in either section, which is an integral part of the PHABSIM analysis. The DEIS should show what habitat needs are for various life stages and state how proposed flows affect those habitat types. The use of non-native trout in the*

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		modeling results is not representative of the system. Native cutthroat are not as impacted by high spring runoff as they typically begin spawning on the falling limb of the hydrograph. Rainbow trout are more affected because they a) begin spawning here during the rising limb of the hydrograph, and b) are acclimated to totally different flow regimes, which has limited their ability to thrive in Colorado. The modeling should have included native species, such as cutthroat trout, mountain sucker, or sculpin. PHABSIM is not just a trout model, and should not be treated as one. Section 4.9.1.2, Invasive Species: Aquatic nuisance species are a significant issue, and should be treated more seriously than they are in the DEIS, especially when it comes to water development infrastructure. "Therefore, conditions that result in more sedimentation (more worm habitat) may result in an adverse impact." State what conditions would result in more sedimentation. According to the analysis, the system is sediment-limited and the DEIS should state where this additional sedimentation comes from. "Therefore, conditions that result in elevated temperatures above 20 degrees C may have a beneficial impact on the incidence of whirling disease." Show how often such conditions would occur as temperatures that high could potentially lead to fish mortality depending on the length of time. Also, include a discussion on how brown trout are carriers of whirling disease; how they are responsible for spreading the disease; and how they are much more tolerant of warm stream temperatures. New Zealand mudsnails have been found in the Boulder Creek drainage. Therefore, it is possible that they could potentially infest the Project Area. This potential effect should be explored in more detail. The conclusions from the paper referenced in the Didymo discussion are not supported as to the whether or not Didymo would thrive in the Fraser River basin: a) "The analysis shows that a large

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		component of the distribution of D. geminata can be attributed to climatic factors alone, at least at a continental scale." – (Kumar et al. 2009 page 418) b) "The importance of the base-flow index in our results is supported by the observation that D geminata is common in regulated rivers…" – (Kumar et al. 2009 page 419) c) "We have established the climatic range for this species in the continental US" and "Although we have examined bioclimatic factors that explain the presence-absence of D geminata at a continental scale, we recognize that other factors may be relevant to the range expansion…" It is important to note that this research was not meant to be used at a regional level. Therefore, conclusions made based on the abstract alone of this paper are incorrect and misleading. It is also important to note that there are approximately 34 other water bodies in which Didymo could occur in the Project Area. There is a real risk associated with Didymo and if it were to spread (because it is present on the west slope as well as in South Boulder Creek), it would be detrimental to the fish species found in those other affected stream reaches. Again, the potential impact of aquatic nuisance species associated with project facilities and operations should be discussed in more detail. **Response #738-238:** Modeling of habitat for resident trout species, as was done in the EIS, is an accepted, science-based practice for impact evaluation in Colorado. Habitat was modeled for species that are of interest to the public, specifically brook, brown, and rainbow trout, the non-native but resident, recreationally, and economically important species in the study area. Although PHABSIM can be used to model habitat for a wide variety of species, there is not sufficient modeling information available for some species, such as sculpins, and they were not modeled. Native cutthroat trout have long since been eliminated from

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		maintaining viable populations downstream of all diversions in the Project area. They only maintain self-sustaining populations upstream of the diversions and the viable populations would not be affected by changes in flow downstream of the diversions. This species likely would not be re-established in any of the stream sections downstream of the diversions in the foreseeable future and modeling for this species is likely of little to no consequence to the public or for management of the resource or for impact evaluation and is not needed in this EIS. Mountain suckers likely were not native to much of the Project area and are only very rarely collected lower in the Colorado River. Modeling for this species is of little consequence for impact evaluation and not necessary for the purposes of the EIS. The DEIS contained a discussion of invasive species. FEIS Section 3.11, 4.6.11, and 5.11 contains revised, expanded discussions of these species in the Project area. Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefers cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11. ***Comment #738-250*** *(ID 4002)**:*** *Flushing Flows This section of the DEIS appears to be making the case that flushing flows are bad and by diverting all the water during runoff, DW is*

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		benefitting the aquatic communities. High flows can in fact be a disturbance at times but are also important for forming and maintaining productive stream channels. Native cutthroat trout are not nearly as affected as some other non-native trout species. **Response #738-250:** The Corps does not agree that the DEIS makes the case that flushing flows are bad, as stated in this comment. Additional evaluations of sediment transport and accumulation including flows required to mobilize multiple particle sizes were conducted and results were provided in Section 5.3 of the FEIS. High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While stream flows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the

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		confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to FEIS Sections 4.6.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Comment #738-244*** *(ID 4003)**:*** *Comparison of Current Conditions and Full Use of Existing System The use of the comparison between the proposed action and Full Use is comparing two hypothetical situations for an effects analysis. State*

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		what these comparisons are based on and make a comparison to current conditions. State what the frequency will be that INDIVIDUAL tributaries will be dewatered. State how much more time they will be de-watered under DW's proposed action. Lumping streams together to discuss the changes in annual flow makes it impossible to accurately assess the effects of the proposed action on individual streams. Show how often individual streams are de-watered under current conditions. Show how much more they will be de-watered when the Proposed Action "extends the period when water does not pass the diversion" (Page 4-319) compared to current conditions. There is no consistency in the individual creek discussion sections in how the additional diversions are presented. Some are percentages, some are annual flow amounts, and some are both. This makes it difficult for reviewers to accurately assess effects Listed below are sentences from the DEIS referring to the availability of R2 Cross simulations. These simulations do not appear to be included in the effects analysis (except for brief Bobtail Creek discussion page 4-324). • "In addition to IFIM habitat data, CDOW provided R2 Cross habitat data for the Fraser River which will also be considered in the effects analysis of the alternatives" (page 3-222) • "R2 Cross simulations are available from CDOW for many of the Fraser River tributary streams, including Cabin, Elk, Hamilton, Iron, Jim, Meadow, Middle Fork Ranch, and Main Ranch" (page 3-233) • "R2 Cross data are available from the CDOW for Bobtail Creek and will be used in the effects analysis of the alternatives" (page 3-239) • R2 Cross data is presented in the Williams Fork tributaries discussion for Bobtail Creek (page 4-324). This data indicates that flows less than 1 cfs would not be sufficient to "fully maintain fish and invertebrates…" The DEIS indicates that the Proposed Action would reduce the flow passing the diversions and extend the period when these

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		streams would be fully diverted, but there is no discussion of impacts of that. Show how fish will be impacted by the reduced flow and if fish are currently found below the diversions. Display what the impacts are of increased diversions. **Response #738-244:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other RFFAs) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). The discussions of changes in hydrology and impacts to biological resources in the diverted tributaries have been expanded in FEIS Sections 4.6.11 and 5.11. R-2-Cross information has been used to a greater extent. ***Comment #738-254*** *(ID 4004)**:*** *Fraser River Tributaries If fish were identified downstream of the diversions, how will an extension in the period of no flow past the diversion structure with the Proposed Action result in "minor adverse impacts" compared to Full Use? Describe these impacts.* **Response #738-254:** The discussions of changes in hydrology and impacts to biological resources in the diverted tributaries have been expanded in FEIS Sections 4.6.11 and 5.11. In fully diverted tributaries, the fish downstream of the diversions have been maintained through long periods of no flow past the diversions due to inputs of water from groundwater and

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		tributaries. These fish are likely to also be maintained if the period of no flow is extended by days or weeks with minor adverse impacts. The minor impacts may slightly reduce the growth or survival of fish. ***Comment #738-246*** *(ID 4005)**:*** *Bypass Flows and City of Englewood ROW Stipulation Discussion The DEIS mentions streams with bypass flows that would be reduced. The bypass flows associated with Englewood are not mentioned, although it is mentioned that with the Proposed Action those bypasses will be met. The DEIS should show if they be met with Full Use and state why these bypasses are different than the other Fraser River tributary bypasses. Show if the Englewood bypasses can be reduced. If so, explain how much more frequently those streams will have reduced bypass. Currently, there are only flumes at the bypass sites for the City of Englewood. Several of the flumes have non-functioning staff gages. According to the 1974 City of Englewood Revised Stipulations, Englewood should do or provide the following: • Install flumes or other stream measuring devices suitable for visual and/or recording determination of stream at locations specified by the Forest Supervisor • Furnish copies of water storage, release, and streamflow summary records maintained in conjunction with this project to District Ranger at established intervals, or cause the same to be done. Currently, the District has no rating tables on file for any of the flumes, which inhibits the USFS from determining if bypasses are being met. In addition to no rating tables, many of the staff gages are in disrepair or are non-existent. The flumes themselves are in disrepair, making them non-functional. Overall, the effects analysis needs a clear discussion of the impacts associated with increased water diversions. The DEIS state that they are there but not what they are.*

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		Response #738-246: Water diversions within Englewood's Cabin-Meadow Creek System have minimum bypass requirements as described in the 1974 City of Englewood Revised Stipulations and these bypasses are shown in DEIS Table 3.1-8. Presently, there are no provisions for reducing bypass flows on these streams and the Proposed Action would not change that condition. FEIS Section 3.1.5.1 has been revised to clarify minimum bypasses within Englewood's Cabin-Meadow Creek System. Minimum bypass stipulations were negotiated between parties and the parties agreed, that under certain conditions, bypass flows could be reduced at certain locations (Fraser River, Vasquez Creek, Ranch Creek, and St. Louis Creek). The Proposed Action would not change the frequency or magnitude that bypass flows would be reduced compared to Full Use of the Existing System. The effects of decreased bypass flows that would occur between Current Conditions and Full Use of the Existing System due to RFFAs are described in FEIS Chapter 4. The gages used to verify minimum bypasses within the Englewood's Cabin-Meadow Creek System, which are listed below, are generally in good condition. • Little Cabin Creek: A 9-inch Parshall Flume operates downstream of the diversion structure and is in good condition. • Cabin Creek: An 18-inch Parshall Flume operates just downstream of the diversion structure and is in good condition. This flume is near the access road and the USGS gauging station on Cabin Creek. • Hurd Creek: A 12-inch Parshall Flume operates just downstream of the diversion structure and is in good condition.

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		• Trail Creek (North and South): The outlet structure on each diversion has a location where bypass flow measurements are taken when water is being diverted at North and South Trail Creeks Diversions from the Trail Creek Basin can be limited in any given year due to downstream senior diversions for irrigation. • Hamilton Creek: A 12-inch Parshall Flume operates just downstream of the diversion structure and is in good condition. • Meadow Creek: A structure that measures relatively low flows with a 2-foot Parshall Flume and higher flows with a 6-foot Parshall Flume operates immediately below Meadow Creek Dam and is in good condition. In addition, an 18-inch Parshall Flume measures the flow bypassed at the turnout to Englewood's Cabin-Meadow Creek System and is in good condition. If the District Ranger of the USFS would like to see any of the records associated with Englewood's Cabin-Meadow System, please contact Denver Water and the following information can be provided: water storage, release records, and stream flows. In addition, Denver Water is willing to furnish rating tables for its measurement flumes. ***Comment #738-252*** *(ID 4006)**:*** *Section 4.13, Recreation: Recreation-related action alternatives denote a simple (in-kind) relocation of existing facilities with very little applicable analysis. For example, the Gross Reservoir Recreation Relocation Plan dated 2008, shows that all south shore recreation sites will be relocated and recreation use consolidated. The lack of analysis for this and other similar recreation development around the reservoir suggests avoidance of typical recreation-related concerns such as pedestrian*

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		safety, user conflict associated with concentrated use, sustaining a positive recreation experience and dealing with unanticipated operational issues just to name a few. It does not appear that mitigations were considered in the effects analysis. Inundation and recreation site relocation will result in a change in use dynamics, extend cumulative affects well beyond the FERC boundary (Winiger Ridge and S. Boulder Creek), and prompt a number of changes to law enforcement and operational plans. The DEIS does not disclose affects related to: • Road relocation, duration of temporary closures, duration of water releases, constantly changing reservoir level, concentrating recreation use, not replacing existing day use and overnight camping opportunities lost to inundation (Winiger Ridge) and a number of other actions not adequately analyzed, will result in a shift in use dynamics. • Below high water mark (HWM) recreation management needs to consider greater HWM fluctuation and related safety and fishing access. •The action alternatives do not explore options for recreation site development, nor do they consider mitigation measures necessary to address changing demographics and recreation demand along the Front-Range. • Water release duration alters kayak and fishing opportunities. • Multiple year use of temporary roads and closure areas will result in inappropriate access and challenging operations during the implementation period. • The new location of Osprey Trailhead will be directly in the spillway zone (aesthetics and safety). •Staging area and stockpile area locations will restrict vegetation re-gen. **Response #738-252:** The relocation of inundated recreational facilities was discussed in DEIS Section 4.13.1. Mitigation for the inundation of recreation facilities at Gross Reservoir is addressed in the 2008 Gross Reservoir Relocation Management Plan, which is a conceptual

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		master plan indicating potential locations for relocated recreational amenities was developed by Denver Water. As part of Gross Reservoir enlargement, Denver Water would need to apply for a FERC hydropower license amendment. This would include changes to the approved 2004 Gross Reservoir Recreation Management Plan to reflect the relocation of recreation features needed as a result of inundation. The 2008 Gross Reservoir Recreation Relocation has been reviewed and the discussion of effects was modified in FEIS Section 5.15.1.1, as appropriate, to reflect changes to the assumptions and mitigation proposed in the DEIS. It is not anticipated that actions related to the Project would substantially increase visitation or alter the pattern or types of recreational use at the reservoir. The reservoir would continue to operate in a similar manner, one that is characterized by seasonal changes in water levels. These effects were analyzed in the DEIS, including flow changes in South Boulder Creek above and below the reservoir. No additional cumulative effects were identified. No drawdown of the water level at the reservoir is planned during dam construction. Discussion of the potential impacts to access during construction was discussed in DEIS Section 4.13.1.1. Vegetation regeneration at staging and stockpile areas was addressed in DEIS Section 4.5. ***Comment #738-245*** *(ID 3996)**:*** *Section 4.15, p. 4-402-404, Visual Resources: The environmental effects are not analyzed fully. For example, "(t)he "bathtub ring" effect resulting from changes in reservoir elevations(e.g., releases, storage, fill rates) is not (emphasis added) illustrated in the photographic simulation. The amount of bare earth exposed by the "bathtub ring" effect would vary depending on reservoir operations. The unattractive visual contrast created by reservoir fluctuations*

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		would be similar to the Current Conditions (2006). Provide support for the assertion that "the dam itself would result in a negligible impact" The environmental consequences section of the DEIS does indicate that the proposed action will not be consistent with the Forest Plan management guidelines in terms of the scenery resource. The environmental consequences section of the DEIS does identify the area adjacent to the Gross Reservoir as having a Visual Quality Objective (VQO) of Retention, and does state that "(i)t is not possible to completely mitigate the major short-term direct construction impacts in order to meet these objectives." And"(t)hese areas would not be compliant with management guidelines and would be considered major adverse long-term impacts." **Response #738-245:** As noted, the presence of a reservoir with water levels that fluctuate seasonally is already a feature of the landscape at Gross Reservoir and this would not change with implementation of the Proposed Action. In the context of a setting with an existing dam and reservoir, an enlarged dam when viewed from the reservoir shoreline and other recreational use areas would not represent a high degree of visual change. This was discussed in DEIS Section 4.15.1.1. Nevertheless, additional analysis has been conducted of the visibility of an enlarged dam from other viewpoints, particularly those located east of the existing dam and appropriate revisions were made FEIS Section 5.17.1.1. Portions of the Project, specifically the quarry and auxiliary spillway, are located on USFS lands that formerly had a Visual Quality Objective of Retention, which is now a Scenic Integrity Objective of High under the newer Scenic Management System. As stated in the DEIS, construction of these facilities would not comply with the current visual

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		management guidelines. The dam site and most other construction activities would occur on lands that are owned by Denver Water. ***Comment #738-206*** *(ID 3997)**:*** *Chapter 5 Mountain pine beetle: Cumulative effects related to mountain pine beetle and sediment supply are discussed in Section 5.6.9, Aquatic Resources on p. 5-47. However, mountain pine beetle is not mentioned prior to this section, such as earlier in the chapter when past, present, and reasonably foreseeable future actions are described, including climate change. Additionally, mountain pine beetle impacts are not discussed under other applicable resource sections including vegetation, wildlife, and special status species.* **Response #738-206:** Potential long-term effects of the pine beetle are many; however, the Moffat Project does not influence or impact the pine beetle epidemic. Impacts from the pine beetle on sediment supply are unknown. DEIS Section 4.1 (FEIS Section 5.1) under the subheading Sediment Supply explains in a qualitative means how pine beetle could impact river systems. Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in the FEIS (Section 5.7). In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership accelerates and expands the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects

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		would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. ***Comment #738-258*** *(ID 3998)**:*** *Section 5.2.2, Past Land-Based Actions: The USFS has done vegetation treatments in some areas west of Gross Reservoir, as part of the Winiger Ridge Ecosystem Management project that should be considered in cumulative effects analysis.* **Response #738-258:** Information on this project has been added to the total effects analysis for vegetation in FEIS Section 4.6.7. ***Comment #738-259*** *(ID 3999)**:*** *Section 5.3.2, Future Land-Based Actions: The USFS is currently developing a proposal for the Forsythe Fuels Treatment Project, which is expected to include areas in the vicinity of Gross Reservoir and should be considered in cumulative effects analysis.* **Response #738-259:** Information on this project has been added to the total effects analysis for vegetation in FEIS Section 4.6.7. ***Comment #738-260*** *(ID 4000)**:*** *Section 5.6, Evaluation of Cumulative Effects, page 5-39: There does not appear to be any disclosure of the cumulative effects to stream morphology and sedimentation.* **Response #738-260:** Total environmental effects related to stream morphology and sedimentation are presented in FEIS Section 4.6.3.

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		Comment #738-261 *(ID 4001)**:*** *Section 5.6.1, Surface Water page 5-39: There does not appear to be a separate cumulative effects section for water quality. Decreased water quality, algal growth, and decreased clarity in Shadow Mountain Lake have been an increasing problem over the last decade. One of the sources of water for Shadow Mountain Lake is water imported from the Fraser River through the Windy Gap project. The analysis should consider the cumulative effects, to nutrients and other pollutants, of loss of dilution in the Fraser River due to increased DW diversions combined with the effects of proposed increases in withdrawal for the Windy Gap project.* **Response #738-261:** Total environmental effects (cumulative effects) for water quality are described in DEIS Section 5.6.1 and FEIS Section 4.6.2. Additional water quality analysis was performed for the Fraser River and the Three Lakes area. Additionally, the FEIS has been reorganized to more clearly discuss the changes from Current Conditions (2006) to Full Use with a Project Alternative (2032) conditions. Please see FEIS Sections 4.6.2 and 5.2. ***Comment #738-242*** *(ID 3989)**:*** *Section 5.6.4, pages 5-42 and 5-43, Soils: The second full paragraph regarding cumulative impacts to soils in the Gross Reservoir area does not mention soil impacts from increasing recreational use, which will be further concentrated and magnified on National Forest System (NFS) land west of Gross Reservoir due to reservoir expansion, because the area available for recreation will be reduced. In addition, the USFS is currently developing a proposal for the Forsythe Fuels Treatment Project, which is expected to include areas near Gross Reservoir and may contribute to soil impacts.*

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		Response #738-242: Recreational facilities at Gross Reservoir would be replaced in-kind above the high water line. Recreation on the western portion of Gross Reservoir (Winiger Ridge) currently occurs on both Denver Water and USFS lands. While the newly created shoreline, due to inundation, would be closer to USFS land than it is currently, the Corps disagrees that there would be an increase of use in this area as a result of the Moffat Project. In the Winiger Ridge Area, some unimproved automobile roads currently reach the shoreline. Article 416, Gross Reservoir Recreation Management Plan, of the Gross Reservoir FERC License (project number 2035-006) indicates that where unimproved automobile access roads reach the shoreline, erosional damage is often serious (page 10, Erosion). The Gross Reservoir Recreation Management Plan describes the required activities in the Winiger Ridge area to address this issue, which are listed in DEIS Table 3.13-1, including closing roads at the FERC boundary to motorized vehicle access to the east shoreline of Winiger Ridge. This restriction will be maintained as part of the license amendment for the Moffat Project. DEIS Section 4.13.11 states that some increase may occur in car top boating due to the enlarged reservoir size; however, access to Winiger Ridge is difficult and no additional roads or facilities, beyond what is already planned to restrict access, would be constructed in the area. There would be no road access to the shoreline in Winiger Ridge and no formal boat launches are planned. At the other recreational areas around Gross Reservoir, inundated recreational facilities, including improved automobile access roads, would be replaced in kind. It is assumed that these new roads and facilities would be constructed in conformance with USFS standards such that they would minimize

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		soil impacts that might lead to erosion. Therefore, it is likely that recreational impacts from replacing these facilities would be the same as, or less than the Current Conditions, except during construction. The Corps acknowledges the Forsythe Fuels Treatment Project in FEIS Section 4.6.6.1. The Corps' assumption is that since the USFS is the lead regulatory agency for the Forsythe Fuels Treatment Project, the USFS would ensure appropriate measures are in place to minimize erosion. ***Comment #738-243*** *(ID 3990)**:*** *Section 5.6.5, pages 5-43 and 5-44, Vegetation: As mentioned above, the USFS has implemented past vegetation treatment west of Gross Reservoir as part of the Winiger Ridge project, and is developing a proposal for future fuels treatment for the Forsythe Fuels Treatment Project. Both projects should be considered in cumulative effects analysis. In addition, there is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources.* **Response #738-243:** FEIS Section 4.6.7. Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in FEIS Section 5.). The Corps acknowledges the Winiger Ridge and Forsythe Fuels Treatment projects as part of total environmental effects for vegetation communities in the Project area (FEIS Section 4.6.7). The current mountain pine beetle (*Dendroctonus ponderosae*) outbreak has been mostly confined to high elevation lodgepole pine forest, above 8,500 feet elevation. It is by far the largest outbreak of mountain pine beetle in the historic record and

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		appears to be exacerbated by winters that are warmer than the historic record. A previous outbreak in the 1970s in Colorado was mostly confined to low elevation ponderosa pine forests. In the past two years, the current outbreak has spread to lower elevation ponderosa pine forests along the Front Range, including areas near Gross Reservoir. Mountain pine beetle is likely to continue to spread in ponderosa pine for the next several years, but it is not clear whether tree mortality will be as high as it was in the even-aged lodgepole pine forests at higher elevations. The forests at Gross Reservoir are comprised mostly of ponderosa pine and Douglas fir. Mountain pine beetle and the Douglas-fir beetle (*D. pseudotsugae*) could affect forest structure in the future. However, both species are native and any outbreak may be within historic limits. DEIS Section 4.1 under the subheading, Sediment Supply, explains how pine beetle could impact the system. Information about the relationship of the Project and mountain pine beetle was added to the vegetation analysis in FEIS Sections 4.6.7.1 and 5.7.1.1. In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million over a five-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects will take place around and upstream of Denver Water reservoirs. Restoration also will help the forests become more resistant to future insect and

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		disease, reduce wildlife risks and maintain habitat for fish and wildlife. Refer to FEIS Appendix G for a description of the Forests to Faucets Partnership and other cooperative efforts. ***Comment #738-15*** *(ID 3991)**:*** *Section 5.6.6, Riparian and Wetland Areas, Page 5-44: "Past and reasonably foreseeable future actions are not likely to have adverse effects on wetlands and riparian areas at Gross Reservoir…" This statement does not recognize the past effects of Gross Reservoir. When the reservoir was constructed, did it flood wetland and riparian areas?* **Response #738-15:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other RFFAs) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). As part of this reorganization, the analysis of cumulative effects to riparian and wetland areas has been expanded and is presented in FEIS Section 4.6.8. ***Comment #738-249*** *(ID 3992)**:*** *Section 5.6.7, page 5-45, Wildlife: The second sentence states, "But, reasonably foreseeable future actions are not likely to have adverse cumulative effects, beyond those associated with the Moffat Project alternatives, because no major actions are planned in this area." According to 40 CFR 1508.7 which is cited in Section 5.0 on p. 5-1, "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Cumulative impacts are not limited to*

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		"major" actions. Past, present, and reasonably foreseeable actions such as residential development and increase and/or displacement of recreation should be considered. There is no discussion of specific species or groups of species. Biology, including habitat requirements, varies greatly among wildlife species; therefore, effects including cumulative effects are different. There is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources. There is no discussion about the cumulative effects of reduction of winter concentration areas and severe winter range on the Clear Creek elk herd. **Response #738-249:** The cumulative effects analysis for wildlife has been expanded in FEIS Section 4.6.9. Recreational facilities at Gross Reservoir would be replaced in-kind above the high water line. Recreation on the western portion of Gross Reservoir (Winger Ridge) currently occurs on both Denver Water and USFS lands. While the newly created shoreline, due to inundation, would be closer to USFS land than it is currently, the Corps disagrees that there would be an increase of use in this area as a result of the Project. DEIS Section 4.13.11 states that some increase may occur in car top boating due to the enlarged reservoir size; however, access to Winiger Ridge is difficult and no additional roads or facilities, beyond what is already planned, would be constructed in the area. There would be no road access to the shoreline in Winiger Ridge and no formal boat launches are planned. Article 416, Gross Reservoir Recreation Management Plan, of the Gross Reservoir FERC Relicensing Plan (Project number 2035-006) indicates that where unimproved automobile access roads reach the shoreline, erosional damage is often

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		serious (page 10, Erosion). In the Winiger Ridge area, some unimproved automobile roads currently reach the shoreline. Inundated recreational facilities, including improved automobile access roads, would be replaced in kind. It is assumed that these new roads and facilities would be constructed in conformance with USFS standards such that they would minimize soil impacts that might lead to erosion. Therefore, it is likely that recreational impacts from replacing these facilities would be the same as, or less than the Current Conditions (2006), except during construction. The current mountain pine beetle (Dendroctonus ponderosae) outbreak has been mostly confined to high elevation lodgepole pine forest, above 8,500 feet elevation. It is by far the largest outbreak of mountain pine beetle in the historic record and appears to be exacerbated by winters that are warmer than the historic record. A previous outbreak in the 1970s in Colorado was mostly confined to low elevation ponderosa pine forests. Although the current outbreak could spread to lower elevation ponderosa pine forests, this has not yet happened. The forests at Gross Reservoir are comprised mostly of ponderosa pine and Douglas fir. Mountain pine beetle and the Douglas-fir beetle (*D. pseudotsugae*) could affect forest structure in the future. However, both species are native and any outbreak may be within historic limits and may not occur for decades. The forests at Gross Reservoir have not been affected by the current outbreak of mountain pine beetle in the Rockies, and have a moderate to good chance of not being affected. Therefore, it is not appropriate to forecast the potential changes in forest structure in the FEIS. Information about the relationship of the Project and mountain pine beetle has been added to the to the vegetation analysis in FEIS Sections 4.6.7 and 5.7. Furthermore, the

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		proposed Project would not affect the current pine beetle outbreak. In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million over a five-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership would accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. ***Comment #738-253*** *(ID 3993)**:*** *Section 5.6.8, page 5-46, Special Status Species: Second Paragraph: This paragraph begins: "Other special status species have been less affected by past actions, but have limited formal protection from future actions under current conditions. However, if populations were to substantially decline they could be brought under the protection of the Endangered Species Act." Many "other special status species" have formal protection including federal laws such as the Migratory Bird Treaty Act, and state laws. On NFS land, USFS policy protects species and ecosystems. It is against USFS policy to cause a trend toward listing under the Endangered Species Act (ESA). Cumulative impacts to "other special status species" are discussed in this brief paragraph, presumably intended to include all special status species other than those listed under ESA which are discussed in the first paragraph. As described under Section 5.6.7 Wildlife above, species differ greatly in their biology and effects, including cumulative*

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		effects. This applies equally to special status plant and animal species, including USFS sensitive species and rare/local concern plant species. As noted under various sections in Chapters 3 and 4, no analysis of effects to individual plant species is presented, and individual plant species are also absent from cumulative effects analysis. There is no mention of mountain pine beetle in this section, although it is discussed related to sedimentation in Section 5.6.9, Aquatic Resources. **Response #738-253:** The cumulative effects analysis has been reformatted and expanded in the FEIS Section 4.6.10, which includes additional information on protections for other special status species and discussion of individual species and species groups. Impacts to USFS sensitive and rare/local concern plant species are addressed in FEIS Section 4.6.10. Information on mountain pine beetle is provided in the vegetation analysis in FEIS Sections 4.6.7 and 5.7. ***Comment #738-251*** *(ID 3994)**:*** *Section 5.6.9, Aquatic Resources, Page 5-46 and 5-47: "To summarize, Moffat Project alternatives would have none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments. Exceptions include minor adverse impacts to fish and invertebrates in South Boulder Creek upstream of Gross Reservoir…" This conclusion seems to completely ignore the impacts to aquatic habitat from the existing stream augmentation. Since this is the most significant impact to the creek, it is hard to understand how the cumulative effects analysis could ignore it. "Cumulative impacts to aquatic resources would be negligible, except for minor adverse impacts to fish and invertebrates in the North Fork Ranch Creek (tributary of the Fraser River), McQueary, Jones,*

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		Bobtail, and Steelman creeks (tributaries of the Williams Fork River)." Discuss if frequent and extended periods of dewatering from the existing diversions, on these and other streams, might have some impact on fish and fish habitat. **Response #738-251:** The existing conditions descriptions of flow and aquatic organisms in diverted tributary streams has been revised and expanded in FEIS Section 3.11. ***Comment #738-177*** *(ID 3995)**:*** *Section 5.6.19, page 5-56: The fact that the Fraser River has little boating may be due to the reduced flows due to transbasin diversions. If the flows allowed, boating would occur as it does now in the floatable sections such as the canyon and therefore further flow declines may increase the impact to this recreation use.* **Response #738-177:** Impacts to boating along the Fraser River as a result of actions associated with the Project were discussed in DEIS Section 4.13.1. ***Comment #738-239*** *(ID 3983)**:*** *Section 5.3.1, page 5-20: Under the Grand County full build out scenario, the cumulative effects in Grand County are predicted to include municipal and domestic water supply shortages and potential failure of waste water treatment plants to meet water quality requirements in effluent discharge permits. Share any proposed mitigation for water supply shortages in Grand County caused by this Project.* **Response #738-239:** Grand County build out demands are included in both the Full Use of the Existing System and Full Use with a Project Alternative (2032) modeling. Additional water shortages anticipated with the

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		Project are estimated to be 6 AF. The impacts of the additional average annual shortage of 6 AF of water for one water provider are addressed in FEIS Section 4.6.1. Several water providers would experience shortages under build-out demands as Denver Water's demands increase from Current Conditions (2006) to Full Use of the Existing System sometime in the near future. These shortages would occur primarily in the fall and winter months as a result of lack of physical supply and Denver Water's upstream diversions. FEIS Section 4.6.19 was revised to include an evaluation of the socioeconomic impacts (i.e., growth, economic development, etc.) of these shortages. Additional water quality analyses have been performed on the Fraser River and the Three Lakes area, including various temperature studies. Refer to FEIS Sections 4.6.2 and 5.2. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Comment #738-240*** *(ID 3984)**:*** *APPENDIX G: BIOLOGICAL RESOURCES Table G-1: Federal and State Listed Endangered or Threatened Species and Occurrence in the Project Area, p. G-2: In this table, Ute ladies'-tresses orchid and Colorado butterfly plant are notated as "not present- habitat is unsuitable or outside current known range" for the Gross Reservoir area. The Biological Assessment (BA) submitted by the ACOE to FWS states on p. 32 that Ute ladies'-tresses orchid is not present at Gross Reservoir. The BA mentions, also on p. 32, that habitat evaluations for Ute ladies'-tresses conducted around Gross Reservoir in 1998 concluded no potential habitat was present. Table 4-1 on p. 20 of the BA assigns a status of "0" also defined as "not present-habitat is unsuitable or outside current known range" to both*

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		Ute ladies'-tresses orchid and Colorado butterfly plant and does not analyze them for the Gross Reservoir area, and neither species is analyzed in the DEIS Section 4.8.1.1 for the Gross Reservoir area. The USFS feels both of these species could be present and requests copies of the documents, particularly those areas around Gross Reservoir, to support these conclusions and the exclusion of both of these species from further analysis for the Gross Reservoir. The USFS also requests copies of the document of habitat assessments and/or surveys, conducted during appropriate times in the growing season by qualified personnel, for both of these species for other areas potentially impacted by project activities including water depletions. **Response #738-240:** Gross Reservoir is above the known elevation range of Ute ladies'-tresses and Colorado butterfly plant in Colorado. In addition to the previous documents and analysis referred to in the comment, botanical field surveys were conducted by the Corps at Gross Reservoir during August of 2010 and there were no observations of these species. Further information about the surveys is provided in the Biological Technical Report. The botanical surveys were conducted by qualified personnel familiar with Ute ladies'-tresses and Colorado butterfly plant. ***Comment #738-241*** *(ID 3985)**:*** *Table G-3: Other Special Status Species Occurrence in the Project Area: Table G-3 in the DEIS Appendix G is missing some USFS (USFS) Sensitive wildlife species, many USFS Sensitive plant species, and most USFS Management Indicator Species (MIS) although MIS are listed in Table 3.7-3 of the DEIS. In addition, although some plant species tracked by the Colorado Natural Heritage Program (CNHP) which are not USFS Sensitive are listed in Table G-3, many plant species*

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		of local concern to the USFS are not included. Species missing from Table G-3 include: 1) several plant species of local concern and one USFS Sensitive plant species found by DW consultants during surveys for the 2001 relicensing, some populations of which will be presumed to be inundated by the proposed reservoir expansion; 2) a plant species documented to occur by the CNHP in the Winiger Gulch Potential Conservation Area (PCA) that is also presumed to be inundated by the proposed expansion; and 3) other plant species of local concern for the ARP which may or may not have been included in past or recent surveys. Table G-3 footnotes do not specify the date(s) of USFS Sensitive species lists obtained for this analysis, and do not mention obtaining a list of rare plants and communities from the Forest as specified in Study Request No. 7 (excerpt below). Following are excerpts from USFS Study Requests where the need for the information described above was stated: Study Request No. 7 - Project Area Sensitive and Rare Plant Survey: "Rare plants" for this study is defined as comprising 1) plants listed or proposed for listing under the Endangered Species Act, 2) the most current USFS Region 2 list of Sensitive Plants, and 3) all other rare Plants of Local Concern, all three groups of which are as identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area (e.g., riparian plants potentially impacted by downstream water depletions or changes in reservoir/downstream hydrology flow rates, levels, or timing; rare plants occupying off-site borrow pits; etc.). "Rare plant communities" include those identified by the Forest that could occur in the project area or that could be impacted by proposed project activities, even if occurring outside the project area. Note that these definitions do not necessarily include plants that are otherwise tracked by the Colorado Natural Heritage Program. The most current lists of rare plants and communities to survey must be derived in concert

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		with the Forest. Study Request No. 8 - Special-Status Terrestrial Wildlife Species and Habitats, Including Amphibians and Invertebrates: Analysis of effects to special-status species should include ESA-listed (endangered, threatened, and candidate) taxa; USFS sensitive species based on the current Region 2 list, and management indicator species (MIS) for the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP); all categories currently tracked by the Colorado Natural Heritage Program (CNHP), including plants, birds, mammals, fish, invertebrates, and natural communities (plants, natural communities, and fish are covered in other study requests); species of local concern specific to the project, if any, and migratory birds not included in the above categories. The tables below contain species lists applicable to the Arapaho and Roosevelt National Forests and Pawnee National Grasslands (ARP), current as of December 2009. Federally Proposed, Threatened, and Endangered species are displayed in Table 1; USFS Sensitive Species in Tables 2A and 2B; Management Indicator Species in Table 3; and Plant Species of Local Concern in Table 4. This document includes terrestrial wildlife and plant species. See Fish comments for fish and other aquatic species. All species listed in these tables should be considered for analysis for projects on the ARP, and reasons for exclusion from analysis should be documented. Tables 2B (USFS Sensitive Plants) and 4 (Plant Species of Local Concern) indicate which plant species should be surveyed for and included in analysis, and probability of occurrence in the Gross Reservoir area. Plant species in Tables 2B and 4, particularly species that occupy riparian areas, wetlands, or fens, should also be considered for analysis for the River Segments. [SEE SOURCE FILE FOR TABLE 1: FEDERALLY LISTED SPECIES THAT MAY OCCUR ON THE ARP OR THAT MAY BE IMPACTED BY WATER DEPLETIONS OR CHANGES IN WATER LEVELS, BASED ON FWS COLORADO FIELD OFFICE

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		COUNTY LIST UPDATED JUNE 2009.] [SEE SOURCE FILE FOR TABLE 2A: REGION 2 USFS SENSITIVE SPECIES FOR THE ARP TERRESTRIAL WILDLIFE, BASED ON USFS MANUAL, ROCKY MOUNTAIN REGION (REGION 2), FSM 2600 – WILDLIFE, FISH, AND SENSITIVE PLANT HABITAT MANAGEMENT, CHAPTER 2670-1 – THREATENED, ENDANGERED, AND SENSITIVE PLANTS AND ANIMALS, SUPPLEMENT NO. 2600-2009-1, EFFECTIVE JUNE 9, 2009.] [SEE SOURCE TABLE FOR TABLE 2B: REGION 2 USFS SENSITIVE SPECIES FOR THE ARP PLANTS, BASED ON USFS MANUAL, ROCKY MOUNTAIN REGION (REGION 2), FSM 2600 – WILDLIFE, FISH, AND SENSITIVE PLANT HABITAT MANAGEMENT, CHAPTER 2670-1 – THREATENED, ENDANGERED, AND SENSITIVE PLANTS AND ANIMALS, SUPPLEMENT NO. 2600-2009-1, EFFECTIVE JUNE 9, 2009.] [SEE SOURCE FILE FOR TABLE 3: MANAGEMENT INDICATOR SPECIES (MIS) [SPECIES IS ADDRESSED UNDER MULTIPLE CATEGORIES; MIS, SENSITIVE AND/OR FEDERALLY LISTED] FOR ARAPAHO AND ROOSEVELT NATIONAL FORESTS, DOES NOT INCLUDE MIS FOR PAWNEE NATIONAL GRASSLAND.] [SEE SOURCE FILE FOR TABLE 4: PLANT SPECIES OF LOCAL CONCERN FOR THE ARP, ALL SPECIES LISTED IN THIS TABLE SHOULD BE SURVEYED FOR AND ANALYZED FOR THE GROSS RESERVOIR EXPANSION.] [SEE SOURCE FILE FOR TABLE 5: PLANT COMMUNITIES OF LOCAL CONCERN FOR THE ARP, ALL COMMUNITIES LISTED IN THIS TABLE SHOULD BE SURVEYED FOR AND ANALYZED FOR THE GROSS RESERVOIR EXPANSION] **Response #738-241:** The Corps notes these tables. The FEIS analysis was updated to include current lists of USFS Sensitive Species, MIS, and rare/local concern plants. Special status species that may be affected

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		are addressed in the FEIS Sections 3.10 and 5.10, and MIS in FEIS Sections 3.9 and 5.9. The Special Status Species Technical Report (Appendix G) addresses all species and reasons for excluding species from detailed analysis in the FEIS text. Please see the response to Comment ID 3551. ***Comment #738-247*** *(ID 3986)**:*** *Table G-5: Other Special Status Species Occurrence in the River Segments This table is missing Special Status Species that may occur in or adjacent to the river segments. Missing species include boreal toad, a USFS Sensitive and MIS amphibian species. Missing species also include a number of Special Status plants that inhabit riparian areas, wetlands, and/or fens, all of which occur adjacent to river segments. Missing plant species include USFS Sensitive plant species park milkvetch, lesser-panicled sedge, livid sedge, silver willow, and others; and plant species of local concern including fern species, several sedge species (Carex spp.), several twayblade species (Listera spp.), and others. Lesser bladderwort, a USFS Sensitive plant species that inhabits montane fens, seeps, and freshwater marshes, is designated in this table as unlikely to occur in all river segments; however suitable habitat may be present in wetlands that occur along various river segments, and fens were documented at two sample sites along the Williams Fork River.* **Response #738-247:** Per consultation with the USFS, surveys were conducted for boreal toad in the fall of 2010. The results of the surveys along with the additional plant species have been added to the list of species in Appendix Table G-5 and are assessed where relevant in the text of the FEIS Section 5.10. Additional information is provided in the Special

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		Status Species Technical Report (Appendix G). The potential for occurrence of lesser bladderwort was upgraded to 3 (potentially present) in Appendix Table G-5. ***Comment #738-248*** *(ID 3987)**:*** *Appendix H – PACSM results for Surface Water The difference between the proposed action, current conditions, full use, and the no action should be more clearly displayed on the Graphs provided in Appendix H. The current graphs are not useful for assessing the effects. Use symbols rather than colors throughout the document to make those graphs easier to interpret. Appendix H-6 provides daily flow changes in the mainstem and North Fork of the South Platte River. It also presents information indicating that there could be substantial maximum daily flow reductions and increases. The effects of these significant daily flow reductions and increases need to be addressed, particularly the effects on channel and bank stability, fisheries, wetlands, riparian and wildlife habitats.* **Response #738-248:** Revisions to the graphs in Appendix H using symbols were not made because the graphs would be more difficult to interpret due to the number of EIS scenarios presented in each graphs. Use of different colors for each EIS scenarios is reasonable to display the flow differences between each EIS scenario. This approach has been used in other EIS documents to display similar hydrologic information. Where appropriate the hydrographs in FEIS Appendix H-4 were modified so that the months displayed extend from March through September as opposed to the entire year to make the graphs easier to interpret. Resource evaluations along the North Fork South Platte River considered the maximum daily flow

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		reductions and increases that would occur. For example, the stream morphology analyses relied entirely on daily flow data. Flood frequency analyses, hydraulic modeling, sediment transport modeling, and effective discharge calculation all used daily flow data generated by PACSM. The evaluation of riparian and wetlands areas and wildlife relied on daily flow data to determine changes in river stage and inundated area along river segments for the 2-year flood event. This analysis was expanded in the FEIS to consider changes in inundated areas resulting in changes in the 5- and 10-year flood flows. Effects on aquatic biological resources were based on simulations using IFIM and daily data for average, wet and dry years. While the flow increases and decreases along the North Fork South Platte River with a Moffat Project on-line can be large, anticipated flows with the Project are still within the range of flows that have occurred historically and 91.4% of the time the flow increase or decrease is within +/- 100 cfs. Flow increases greater than 300 cfs occur less than 1% of the time. Similarly flow decreases greater than 100 cfs occur less than 0.5% of the time. Annual peak flows along the North Fork South Platte River are virtually the same for both Full Use of the Existing System and the Proposed Action for all flood flows with an estimated recurrence interval of 2 years or more. While the maximum daily flow reductions and increases are substantial, they are infrequent and the changed flows are within the range of flows that have occurred historically. The resource evaluations considered these daily flow changes as discussed above. See also the response to Comment ID 3520. ***Comment #738-262*** *(ID 3988)**:*** *Appendix K (Preliminary Section 404(b) (1) Guidelines Compliance. After reviewing the DEIS,*

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		the USFS feels that the proposed mitigation measures are not sufficient to adequately protect public resources. As described in the Introduction (Section 1), this 404 analysis should document the potential environmental consequences associated with the project. However, this "effects" section appears to assume that the only effect the project is having on aquatic populations in streams covered by the DEIS is a reduction or change in habitat due to increased water withdrawal. Although increased diversion volumes are a concern to the USFS, this limited description of effects is inaccurate. USFS personnel have identified many other impacts of the Project on fish in Westside streams. Some of these effects have already been documented in earlier letters to DW and FERC. Additional direct effects to fish were identified in a field review of Westside project diversions on July 21-23, 2009 and are described below. Impacts to fish in the Englewood-Ranch Collection System which should be disclosed in the DEIS and addressed via proposed mitigation measures include: • The spillway at Meadow Creek Reservoir traps and isolates fish from both the reservoir and Meadow Creek itself. Fish transported out of the reservoir during spill events were observed trapped in the pool at the end of the spillway where they are subject to poor water quality as water temperatures warm and oxygen is depleted. Ultimately most if not all of the fish trapped in the spillway pool will likely die. • The outlet from the reservoir is not designed to protect fish from injury or mortality if they are entrained out of the reservoir. It is hard to imagine how any fish thus entrained could survive to reach Meadow Creek after they are run through the outlet. • The DW Meadow Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. • The DW Hamilton Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cutthroat trout have been documented

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		upstream of this diversion. • The Cabin Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cabin Creek has been identified by the USFS as a High Priority recovery stream for Colorado River Cutthroat. Project effects for other streams on National Forest System (NFS) lands in the Frazier River system are not adequately analyzed, including Vasquez Creek, St. Louis Creek and the Frazier River itself. • At the main Frazier River Diversion, a considerable number of brook trout were observed entrapped in an isolated off-channel pool below the instream flow release facility. At least 4 mortalities were observed at the time with more expected to occur with reductions in water quantity and quality at the site. • The Vasquez Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. Cutthroat trout are present in the upper watershed and thus subject to entrainment in the canal. • The outlet of the Vasquez tunnel contains significant spoil piles made from tunnel debris. The unsurfaced road to the site is in poor condition and is eroding. The spoil pile under the road is rock with no topsoil and has not been revegetated. The sideslopes down to the stream were over-steepened and eroding. The spoil pile constrains Vasquez Creek and the stream flows into the toe of the waste dump causing active erosion of the sideslope above into the stream. • The St. Louis Creek diversion is unscreened allowing entrainment of fish into the Moffat Canal system. St. Louis Creek upstream of the diversion site is a high priority watershed for cutthroat reintroduction due to the large amount of high quality habitat upstream. **Response #738-262:** The DEIS and the FEIS both discuss flow changes and diversions with the Project and the potential impacts to fish habitat and fish populations. Many of the issues identified above in the comment are not relevant to the Moffat Project and therefore are not

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		discussed EIS. Mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Comment #738-230*** *(ID 4007)**:*** *Appendix M – DW's Proposed Mitigation Plan for the Moffat Collection System Project This Appendix begins, "This Mitigation Plan is DW's proposal to provide compensatory mitigation for unavoidable adverse effects associated with the Proposed Action for the Moffat Project." The mitigation proposed for riparian vegetation would help to compensate for only a portion of riparian areas proposed for inundation, and would not address riparian habitat to be lost in the various drainages. For wildlife and SSS, the mitigations proposed appear to apply primarily to complying with the Endangered Species Act and the Migratory Bird Treaty Act. There is no mitigation proposed for special status plant populations that would be inundated, or for loss of critical elk winter range. The USFS recommends additional mitigation measures in several resource areas. Refer to comments under the various Mitigation and Monitoring sections of Chapter 4 for specifics.* **Response #738-230:** FEIS Appendix M contains the Fish and Wildlife Mitigation Plan that has been reviewed and approved by the Colorado Wildlife Commission. The Corps conducted surveys for special status plant populations at Gross Reservoir during the summer of 2010 after coordination with the USFS ARNF botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.10.1 and 5.10.1, and are described in more detail in the Survey for Rare and Sensitive Plant Species at Gross reservoir included in Appendix G. While several rare plants species would

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		be affected by inundation under all alternatives, new occurrences of all species were also documented outside of the impact area. The impacts by alternative are presented in FEIS Section 5.10, including an assessment of population viability in the Arapahoe National Forest adjacent to Gross Reservoir. Project impacts to elk habitat and appropriate mitigation measures are being evaluated with the USFWS and CPW per the Corps' obligations under the Fish and Wildlife Coordination Act. ***Comment #738-226*** *(ID 4008)**:*** *DW's proposed mitigations are inadequate to address the Project's impacts to fish populations and fish habitat. As described earlier in this submittal, USFS personnel have documented numerous instances where project facilities and operations have directly impacted fishery resources (including operations that result in direct mortality to fish) on NFS lands. DW has proposed no mitigation measures whatsoever to resolve these impacts.* **Response #738-226:** Mitigation for any predicted Project impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Comment #738-256*** *(ID 4009)**:*** *The DEIS identifies several westslope streams affected by DW's diversion of water to the Moffat Collection system as containing pure or hybridized populations of Colorado River cutthroat. However, rather than address the impact of the project through screening or other actions that would protect individuals within these existing populations, DW's proposed mitigation measure is to cooperate with CDOW to establish several new populations of Colorado River Cutthroat in Wilderness Areas*

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		unaffected by the project. While the USFS supports these type of efforts to reintroduce native cutthroat trout into protected habitat, the agency feels that the first priority actions should be to protect existing populations and mitigating project effects in an "on-site, in-kind" manner consistent with CEQ Mitigation Priorities:, found at 40 CFR Party 1500-1508. **Response #738-256:** A summary of the information on the lineage of GB cutthroat trout populations has been added to FEIS Sections 3.10, 3.11, 4.6.11, and 5.11. FEIS Section 3.11 has been updated with current information concerning cutthroat trout in the Project area. The update included additional sampling data from some of the Fraser River tributary streams in 2010 to address data gaps and agency concerns. ***Comment #738-257*** *(ID 4010)**:*** *The DEIS indicates that there will be impacts to aquatic habitat and aquatic biota in the North Fork of the South Platte. In Appendix M there is some discussion of mitigation for these impacts. The Pike National Forest would like to be involved in development of a mitigation plan that addresses these impacts. Any mitigation plan should address concerns identified by the CDOW that could potentially impact recreational fishing on the North Fork and also the South Platte. Although mitigation is mentioned only for the North Fork, we feel that any changes in release patterns from Eleven Mile and Cheesman reservoirs may also require mitigation and protection of fisheries habitat investments made in Eleven Mile Canyon. In the PSICC Forest Plan, we have an anti-degradation policy that prevents projects that lead to resource degradation.* **Response #738-257:** The DEIS and the FEIS both discuss flow changes

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		and diversions with the Project and the potential impacts to fish habitat and fish populations. Mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. There is not expected to be any impact to fisheries in the South Platte River in Eleven Mile and Cheesman canyons and no mitigation is warranted. ***Comment #738-227*** *(ID 4011)**:*** *The mitigation section, Appendix M, does not adequately demonstrate that natural stream restoration will occur. "To compensate for reduced flows and subsequent potential decrease in aquatic habitat in the North Fork, DW will create aquatic habitat improvements on the North Fork. These improvements will be developed in coordination with the ACOE, CDOW, USFS, and landowners. For example, pool habitat could be created by a combination of boulder placement and grade controls. DW will submit a detailed aquatic habitat improvement plan as part of the final Mitigation Plan." The USFS needs to see a mitigation design that incorporates natural restoration techniques.* **Response #738-227:** FEIS Appendix M includes Denver Water's Conceptual Mitigation Plan. ***Comment #738-255*** *(ID 4012)**:*** *Comments to Supporting Documentation and References Existing Channel Conditions Report Figure 6, Page 12: The 1986 general equation contradicts the sediment supply curves in some of the graphs in appendix H. The 1986 general equation expresses a sediment discharge/rating curve rather than a supply equation because it is related to flow. Sediment is supplied from uplands, especially in disturbed watersheds as well as from in-channel sources. The 1986 general equation is*

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		representative of phase I bedload transport only and while it clearly over-predicts sediment transport at flows less than approximately 160 cfs (because it includes suspended load as well as bedload supposedly), it misses the second part of the bedload function (phase II) and substantially underestimates the sediment transport at higher flows (>160 cfs). In the most extreme case of under-prediction, the general equation compared to measurements at site 4 under-predicts daily sediment discharge by a factor of 2.5 (predicts 20 tons/day, actual is 50 tons per day). What is wrong with the general "supply" equation? Does this "supply" equation account for sediment stored in channel backwaters, on the floodplain and point bars or from episodic mass wasting or basin development causing accelerated upland erosion? If "gravel to cobble sized sediments typically act as an immobile layer that moderates the supply of bed load sediments until higher flows break up the armor layer and make sediments available for transport as bed load", yet the supply equation discounts this portion of the bedload function, how could bedload transport be supply limited? Why is there no discussion of in-channel sediment supply at higher flows where the streambed is mobilized? Provide data to support the assumption that sediment discharge from a stream is an appropriate surrogate for sediment supply to a stream from the watershed. Bedload is energy limited, especially for phase II transport and the sediment supply is greater than the transport capacity. Further diversions lead to aggradations and a reduction in cross-sectional area and when extreme high flows escape diversion and enter a shrunken channel, the channel is blown out and the function is lost. Flood stage is increased by jamming high flows into a channel with decreased water conveyance capacity. Cooper, D. J., L. H. MacDonald, S. K. Wenger, S. Woods. 1998. Hydrologic restoration of a fen in Rocky Mt. National

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		Park, Colorado. Wetlands 18: 335-345). These surveys were done specifically for the Recreation Management Plan and powerline relocation and did not include all areas of anticipated disturbance for the proposed reservoir enlargement, as indicated under FERC License Article 410, heading B. Survey Methodology Used which states "Specific areas around Gross Reservoir were surveyed during June, July, and August 2001. No attempt to survey the entire reservoir was made." **Response #738-255:** Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply was found to be related to flows. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. Additional assessments including sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Assessments included review and analysis of recent sediment data collected from the Fraser River Basin by the USFS. Results are provided in FEIS Section 4.6.3. An analysis of past changes to stream morphology resulting from existing flow reductions was completed using historic data as a way to supplement results obtained from numeric modeling. This analysis addresses whether aggradation has occurred as a result of past diversions as a means of verifying numeric results. These analyses are provided in FEIS Section 4.6.3.

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		The Corps is unaware of the context of the portion of the comment relating to the powerline relocation related to the proposed reservoir enlargement and therefore did not address this segment of the comment.

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Comment #765 Carol L. Campbell, Acting Deputy Regional Administrator United States Environmental Protection Agency, Region 8 1595 Wynkoop Street, Denver, CO 81602 and Melanie Wasco United States Environmental Protection Agency, Region 8, 8EPR-N 1595 Wynkoop Street, 8EPR-N Denver, CO 81602	From: Wasco.Melanie@epamail.epa.gov [mailto:Wasco.Melanie@epamail.epa.gov] Sent: Wednesday, March 17, 2010 6:32 PM To: MOFFAT.EIS@usace.army.mil Cc: Chieply, Martha S NWO; Carey, Timothy T NWO; Franklin, J Scott NWO Subject: EPA R8 comment letter - Moffat Collection System Project DEIS All, Please find an e-copy of EPA's NEPA/CWA Section 404 comment letter attached below on the Draft EIS for the Moffat Collection System Project. The original and copies of the letter are being mailed to you as well. Thank you for your consideration of our input. - Melanie (See attached file: Moffat DEIS NEPA-404 3.17.10 comment letter.pdf) Melanie Wasco U.S. EPA, Region 8, 8EPR-N 1595 Wynkoop Street Denver, CO 80202-1129 303-312-6540 phone 303-312-7203 fax - Moffat DEIS NEPA-404 3.17.10 comment letter.pdf	***Comment #765-7*** *(ID 5197)**:*** *Please find an e-copy of EPA's NEPA/CWA Section 404 comment letter attached below on the Draft EIS for the Moffat Collection System Project. The original and copies of the letter are being mailed to you as well.* **Response #765-7:** The Corps received both the electronic and hard copies of EPA's comments. ***Comment #765-6*** *(ID 5196)**:*** *In accordance with our responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321, et. seq., Section 309 of the Clean Air Act (Section 309), 42 U.S.C. Section 7609, and Section 404 of the Clean Water Act (Section 404), 33 U.S.C. 1344, the U.S. Environmental Protection Agency, Region 8 (EPA) has completed its review and evaluation of the Draft Environmental Impact Statement (EIS) and permit application prepared by the U.S. Army Corps of Engineers (Corps) for the Denver Water Moffat Collection System Project. These comments are being sent consistent with Part IV(3)(a) of the Clean Water Act (CWA) Section 404(q) Memorandum of Agreement (MOA) between the EPA and the Department of the Army. The Moffat Collection System Project is a regional water supply project designed to provide 18,000 acre-feet (AF) per year of new, firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitments. The 18,000 AF partially addresses an estimated shortfall of 34,000 AF per year in water supply that is projected for 2016 to 2030. The remaining 16,000 AF per year of estimated shortfall will be addressed through conservation efforts. The Draft EIS evaluates five action alternatives, plus the No Action Alternative. These alternatives include: Alternative*

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	Attachments: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8 1595 Wynkoop Street DENVER, CO 80202-1129 Phone 800-227-8917 http://www.epa.gov/region08 Ref: 8EPR MAR 17 2010 Martha S. Chieply, Regulatory Chief Omaha District, U.S. Army Corps of Engineers 215 North 17th Street Omaha, NE 68102 Re: Moffat Collection System Project, Draft Environmental Impact Statement, October 2009, CEQ# 20090365 and Public Notice for 404 Permit Application NWO-2002-80762-DEN Dear Ms. Chieply: In accordance with our responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321, et.seq., Section 309 of the Clean Air Act (Section 309), 42 U.S.C. Section 7609, and Section 404 of the Clean Water Act (Section 404), 33 U.S.C. 1344, the U.S. Environmental Protection Agency, Region 8 (EPA) has completed its review and evaluation of the Draft Environmental Impact Statement (EIS) and permit application prepared by the U.S. Army Corps of Engineers (Corps) for the Denver Water Moffat Collection System Project. These comments are being sent consistent with Part IV(3)(a) of the Clean Water Act (CWA) Section 404(q) Memorandum of Agreement (MOA) between the EPA and the Department of the Army. The Moffat Collection System Project is a regional water supply project designed to provide 18,000 acre-feet (AF) per year of new, firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitments. The 18,000 AF partially addresses an estimated shortfall of 34,000 AF per year in water supply that is projected for 2016 to 2030. The remaining 16,000 AF per year of estimated shortfall will be addressed through conservation efforts. The Draft EIS evaluates five action alternatives, plus the No Action Alternative. These alternatives include: Alternative 1a, the Proposed Action – Gross Reservoir Expansion (Additional 72,000 AF); Alternative 1c – Gross Reservoir Expansion (Additional 40,700 AF) and a new reservoir in Leyden Gulch (31,300 AF); Alternative 8a – Gross Reservoir Expansion (Additional 52,000 AF) and use of reusable return flows stored in gravel pits along the South Platte River (5,000 AF); Alternative 10a – Gross Reservoir Expansion (Additional 52,000 AF) and use of reusable return flows to recharge the Denver Basin Aquifer (20,000 AF); and Alternative 13a – Gross Reservoir Expansion (Additional 60,000 AF) and transfer of agricultural water rights for storage in gravel pits along the South Platte River (3,625 AF); and the No Action Alternative.	*1a, the Proposed Action - Gross Reservoir Expansion (Additional 72,000 AF); Alternative 1c - Gross Reservoir Expansion (Additional 40,700 AF) and a new reservoir in Leyden Gulch (31,300 AF); Alternative 8a - Gross Reservoir Expansion (Additional 52,000 AF) and use of reusable return flows stored in gravel pits along the South Platte River (5,000 AF); Alternative 10a - Gross Reservoir Expansion (Additional 52,000 AF) and use of reusable return flows to recharge the Denver Basin Aquifer (20,000 AF); and Alternative 13a - Gross Reservoir Expansion (Additional 60,000 AF) and transfer of agricultural water rights for storage in gravel pits along the South Platte River (3,625 AF); and the No Action Alternative.* **Response #765-6:** The Corps notes the comment. ***Comment #765-53*** *(ID 5195)**:*** *EPA appreciates the time and effort of the Corps in addressing some of our comments on the Preliminary Draft EIS. For example, EPA is pleased with the expanded hydrologic analysis that includes the Fraser River tributaries affected by diversion. This expanded analysis provides much greater detail as to the potential changes in operation in the Moffat Collection System. However, many impacts and analyses identified as concerns in our original review and evaluation still remain. EPA's primary concerns are that the Draft EIS does not include a sufficient analysis of water quality and aquatic resource impacts due to the proposed project, and does not adequately identify the mitigation of those impacts. Once these analyses are completed, the results are likely to show that the project has the potential to cause adverse impacts to impaired waterbodies and special aquatic sites. In addition, the Draft EIS does not fully address compliance with the CWA Section 404(b)(I) Guidelines (Guidelines). Further concerns are described in the enclosed detailed comments.*

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	EPA appreciates the time and effort of the Corps in addressing some of our comments on the Preliminary Draft EIS. For example, EPA is pleased with the expanded hydrologic analysis that includes the Fraser River tributaries affected by diversion. This expanded analysis provides much greater detail as to the potential changes in operation in the Moffat Collection System. However, many impacts and analyses identified as concerns in our original review and evaluation still remain. EPA's primary concerns are that the Draft EIS does not include a sufficient analysis of water quality and aquatic resource impacts due to the proposed project, and does not adequately identify the mitigation of those impacts. Once these analyses are completed, the results are likely to show that the project has the potential to cause adverse impacts to impaired waterbodies and special aquatic sites. In addition, the Draft EIS does not fully address compliance with the CWA Section 404(b)(1) Guidelines (Guidelines). Further concerns are described in the enclosed detailed comments. The Draft EIS minimizes potential impacts of the action alternatives as a result of analysis against multiple baseline conditions. The Draft EIS presents as baseline both "current" and "existing" conditions. "Current" conditions are described as the affected environment in 2006, and "existing" conditions include significant diversions that are currently planned to occur through actions by the applicant between now and 2016. The action alternatives are compared against the existing conditions and include those impacts that are expected to occur after 2016. In using two different baselines, the current (2006) and existing (2016), the net effect for all the scenarios maximizes the apparent impacts prior to 2016 and minimizes the apparent impacts of the action alternatives. This analysis does not provide an accurate understanding of the breadth of impacts that are expected to occur as a result of each alternative. Water quality and aquatic resources data used in this evaluation should best reflect current conditions, current impairment status, and the most recent hydrologic conditions. EPA recommends that the Corps either 1) use the current (2006) conditions as a baseline for the impacts analysis, or 2) provide additional analyses that adequately quantify the changes in aquatic resources and water quality parameters between 2006 and 2016 in order to thoroughly disclose the impacts of the proposed action. Water Quality Analysis The Draft EIS does not sufficiently address the project's potential to contribute to adverse water quality impacts on the Western Slope, including: temperature impairments, dissolved oxygen impairments, and nutrient impairments. The Draft EIS refers to the impairments identified in the 2008 Integrated Report CWA Section 303(d) list. A draft 2010 303(d) list is available from the Colorado Department of Public Health and Environment (CDPHE), and this updated list provides newly identified impairments for waterbodies affected by this project. A table is provided in the enclosed detailed comments that includes the draft 2010 303(d) listings for the watersheds of interest. Of greatest concern are the newly identified temperature impairments in Ranch Creek, the Fraser River, and the Upper Colorado segments below the confluence with the Fraser. Water withdrawals in these areas associated with the proposed project, along with past diversion actions, will likely exacerbate these temperature impairments, and this impact should be disclosed in the Draft EIS. Because the Draft EIS does not include the 2	**Response #765-53:** Please see the response to Comment ID 5192. The Corps' Section 404 regulations require the Corps to consider degradation to waters of the U.S. and minimization of potential adverse effects to the aquatic ecosystem. Additionally, the Corps' public interest review will balance both protection and utilization of natural resources and will include consideration of conservation, historic and cultural values, fish and wildlife values, aesthetics, etc. The Corps is appropriately implementing the CWA Section 404 regulations for the Moffat Project NEPA process. ***Comment #765-17*** *(ID 5194)**:*** *The Draft EIS minimizes potential impacts of the action alternatives as a result of analysis against multiple baseline conditions. The Draft EIS presents as baseline both "current" and "existing" conditions. "Current" conditions are described as the affected environment in 2006, and "existing" conditions include significant diversions that are currently planned to occur through actions by the applicant between now and 2016. The action alternatives are compared against the existing conditions and include those impacts that are expected to occur after 2016. In using two different baselines, the current (2006) and existing (2016), the net effect for all the scenarios maximizes the apparent impacts prior to 2016 and minimizes the apparent impacts of the action alternatives. This analysis does not provide an accurate understanding of the breadth of impacts that are expected to occur as a result of each alternative. Water quality and aquatic resources data used in this evaluation should best reflect current conditions, current impairment status, and the most recent hydrologic conditions. EPA recommends that the Corps either I) use the current (2006) conditions as a baseline for the impacts*

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	most recent relevant information on the updated 2010 Colorado impaired water bodies list, the result may be an underestimation of anticipated impacts. The Draft EIS does not include a pollutant loading analysis and does not determine changes to the assimilative capacities as a result of additional water withdrawals to the waterbodies affected by this project as outlined in the detailed comments of this letter. As a result, the Draft EIS does not contain sufficient information to determine whether currently permitted discharges will cause or contribute to a violation of State water quality standards in the future. It is clear that the Fraser River, Ranch Creek and the Colorado River currently are considered impaired for temperature. The proposed project will contribute to these water quality impairments. Additionally, downstream waterbodies that receive Fraser River water diversions are presently showing the effects of nutrient pollution. The actions proposed for the Fraser River will increase the relative nutrient load in the river and contribute to water quality degradation in the Fraser and Williams Fork Rivers and their tributaries, the Colorado River and the Blue River. The impacts analysis should disclose and address this issue and provide revised conclusions regarding the water quality necessary to support aquatic life classifications (i.e., dissolved oxygen, temperature, nutrients). Aquatic Resources The Draft EIS does not sufficiently analyze the direct, indirect (secondary) and cumulative impacts to aquatic life, functions and values and aquatic ecosystem diversity, productivity and stability reasonably associated with the proposed discharge, as is explicitly required under the Guidelines (see 40 CFR §§ 230.10(c), 230.11 (g) and (h)). The Draft EIS and Aquatic Resources Technical Report do not contain an analysis of impacts to aquatic resources of South Boulder Creek and other Gross Reservoir tributaries from reservoir filling. The proposed action will result in permanent impacts to 8,180 feet of perennial waters, including South Boulder Creek, Forsyth Gulch, Winiger Gulch Tributary, Winiger Gulch and an unnamed southern tributary (Draft EIS p. 4-253). In the Riparian and Wetland Areas section of Chapter 4, the Draft EIS states that this is "a major impact," yet the Draft EIS does not address any impacts on instream habitat and associated aquatic communities. This is a significant gap in the analysis of impacts. In order to adequately evaluate the appropriateness of alternatives and mitigation, and determine the Least Environmentally Damaging Practicable Alternative (LEDPA) under CWA Section 404, information on these impacts must be characterized and disclosed in the EIS and addressed in the surface water and aquatic resources sections; appropriate avoidance, minimization and mitigation must be proposed and presented in the document. The Draft EIS does not provide a sufficient analysis of ecological impacts anticipated to occur under each alternative. In order to characterize the magnitude of direct, indirect and cumulative impacts, the Draft EIS uses five categories of impact intensity (none, negligible, minor, moderate and major), which are inconsistently applied throughout the documents and not sufficiently defined. This lack of consistency and failure to provide clear definitions for the various levels of impacts undermines the credibility of the impacts analysis. The Draft EIS states that "An assessment of impact thresholds has been provided for all resources except the surface water (Section 4.1 of the EIS) since the degree of impact is specific to each flow-related 3	*analysis, or 2) provide additional analyses that adequately quantify the changes in aquatic resources and water quality parameters between 2006 and 2016 in order to thoroughly disclose the impacts of the proposed action.* **Response #765-17:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. • Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/yr, which Denver Water can achieve

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	resource" (Appendix K-33), yet there is no information in the Draft EIS that describes the impact thresholds for each resource. With the information provided, we are unable to understand the scientific basis for impact categories or the magnitude of actual impacts. The current description provides no information as to how these impact categories relate to environmental or biological condition or whether uncertainty analyses, sensitivity analyses or confidence limits were used to define these thresholds for impact categories. EPA requests that the Corps define the impact categories such that they are 1) based upon the actual magnitude of impact, 2) directly related to environmental or biological condition and 3) scientifically rigorous (e.g., "minor" impacts reflect a change in % Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa of XX% under the proposed action compared with existing conditions). The baseline condition for the project identified in the Draft EIS lacks consideration of how past diversions have affected the aquatic resources to date. In addition, the Draft EIS underestimates the current extent of diversion impacts on aquatic resources and water quality by presenting 2006 data without the broader context of cumulative flow diversions in the system. An assessment of impacts in the context of total diversion magnitude, incorporating past cumulative diversions, is necessary to accurately characterize the current and existing baseline conditions, to characterize any potential non-linear changes in aquatic resources, and to develop a plan for appropriate mitigation. Additional information on past diversions would substantially improve the impacts analysis and provide insights on the current baseline that the Draft EIS analysis lacks. The cumulative impacts analysis does not sufficiently address potentially significant impacts to aquatic resources in the Fraser and Williams Fork Rivers and their tributaries, the Colorado River, the Blue River, and North Fork South Platte River related to the cumulative effect of flow management. Potential impacts to aquatic ecosystems, including perennial streams, associated wetlands, and aquatic habitats from present and past flow management are not sufficiently evaluated and disclosed in the analysis. Without a more robust impact analysis that includes an accurate characterization of water quality, baseline and existing conditions and a scientifically based characterization of impact intensity, the cumulative impacts section of the Draft EIS is insufficient. In order to comply with the Guidelines, a project must not cause or contribute to significant degradation of aquatic ecosystem diversity, productivity and stability, either individually or cumulatively. In the context of the Guidelines, significance does not represent a statistical standard, but reflects changes that are more than trivial. The Draft EIS states that the project's direct and indirect impacts to stream morphology, water quality and aquatic life are minor, and that cumulative effects are similar to direct effects. However, research in the Fraser River Basin and Colorado River has shown that similar past actions of diversion and alteration of flow regimes have led to significant changes in water quality and aquatic life. When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, the degradation to the aquatic ecosystems in the Williams Fork, Fraser and Colorado River Basins may reach a level that is likely to be significant, and compensatory mitigation is necessary to reduce impacts below a level of significance. 4	with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative. ***Comment #765-52*** *(ID 5193)**:*** *Water Quality Analysis The Draft EIS does not sufficiently address the project's potential to contribute to adverse water quality impacts on the Western Slope, including: temperature impairments, dissolved oxygen impairments, and nutrient impairments. The Draft EIS refers to the impairments identified in the 2008 Integrated Report CWA Section 303(d) list. A draft 2010 303(d) list is available from the Colorado Department of Public Health and Environment (CDPHE), and this updated list provides newly identified impairments for waterbodies affected by this project. A table is provided in the enclosed detailed comments that includes the draft 2010 303(d) listings for the watersheds of interest. Of greatest concern are the newly identified temperature impairments in Ranch Creek, the Fraser River, and the Upper Colorado segments below the confluence with the Fraser. Water withdrawals in these areas associated with the proposed project, along with past diversion actions, will likely exacerbate these temperature impairments, and this impact should be disclosed in the Draft EIS. Because the Draft EIS does not include the most recent relevant information on the updated 2010 Colorado impaired water bodies list,*

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	Mitigation EPA is concerned that the mitigation as currently proposed in Appendix M of the Draft EIS does not compensate for the likely adverse impacts associated with this project per 40 CFR § 230.10(d). The Draft EIS states that direct impacts to waters of the U.S. include permanent loss of 8,356 linear feet of perennial streams and 1.95 acres of wetlands. The current proposed mitigation for the perennial stream impacts is an additional 5,000 AF environmental pool at Gross Reservoir, which would provide enhancement flows to 17 miles of South Boulder Creek downstream of the reservoir. This proposal would provide great benefit for the fishery in South Boulder Creek. However, because none of the direct impacts to the aquatic resources in the tributaries of Gross Reservoir were disclosed in the Draft EIS, EPA is unable to determine whether the proposed enhancement alone is sufficient to offset the major impacts associated with inundating riffle and pool complexes of South Boulder Creek, Forsythe Gulch, Winiger Gulch and its tributary, and the unnamed southern tributary to Gross Reservoir. In the event that the proposed mitigation is insufficient to offset the permanent direct impacts of an enlarged Gross Reservoir, additional mitigation and adaptive management options must be required as part of the final authorized project. Additional mitigation options are discussed in the detailed comments section of this letter. In accordance with the Guidelines, any project that causes or contributes to significant degradation, even if the contributions are 'minor' as stated in the Draft EIS, requires compensatory mitigation in order to reduce those impacts below a level of significance. There are available mitigation opportunities that the Corps should consider to offset the significance of the impacts and minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River Basins. These mitigation options are described in our detailed comments. In general, a mitigation plan for this project should include a monitoring and adaptive management plan for impacts to water quality, groundwater, stream morphology and aquatic life so that if impacts greater than those discussed in the Draft EIS are found, mitigation measures can be implemented. Details of the mitigation plan should be disclosed and included in the Final EIS and Record of Decision to satisfy both NEPA and CWA Section 404 permit requirements. **Section 404 Compliance Determination** EPA is providing comments on the public notice for the District's CWA Section 404 permit application for this project, which the Corps circulated for public review concurrently with the Draft EIS. The Corps intends for the Draft EIS to address compliance with the Section 404(b)(1) Guidelines, 40 CFR Part 230. The Draft EIS has not provided sufficient information to determine compliance with the Guidelines in accordance with 40 CFR § 230.10 due to: 1) inadequate analysis regarding the availability of less environmentally damaging practicable alternatives (230.10(a)), 2) inadequate information and analysis regarding potential violations of state water quality standards (230.10(b)), 3) inadequate information and analysis regarding the potential for the proposed action to cause or contribute to significant degradation of waters of the 5	*the result may be an underestimation of anticipated impacts.* **Response #765-52:** Please see the response to Comment ID 5192. FEIS Section 3.2 has been modified to reflect the 2012 Section 303(d) List as reflected in CDPHE Regulation 93. ***Comment #765-51*** *(ID 5192)**:*** *The Draft EIS does not include a pollutant loading analysis and does not determine changes to the assimilative capacities as a result of additional water withdrawals to the waterbodies affected by this project as outlined in the detailed comments of this letter. As a result, the Draft EIS does not contain sufficient information to determine whether currently permitted discharges will cause or contribute to a violation of State water quality standards in the future. It is clear that the Fraser River, Ranch Creek and the Colorado River currently are considered impaired for temperature. The proposed project will contribute to these water quality impairments. Additionally, downstream waterbodies that receive Fraser River water diversions are presently showing the effects of nutrient pollution. The actions proposed for the Fraser River will increase the relative nutrient load in the river and contribute to water quality degradation in the Fraser and Williams Fork Rivers and their tributaries, the Colorado River and the Blue River. The impacts analysis should disclose and address this issue and provide revised conclusions regarding the water quality necessary to support aquatic life classifications (i.e., dissolved oxygen, temperature, nutrients).* **Response #765-51:** Additional water quality analysis, including temperature, has been performed on the Fraser River and Ranch Creek. Additional water quality analysis has been performed for the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2.

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	U.S. (230.10(c)), and 4) insufficient information to determine adequate mitigation, and the mitigation proposed is not sufficient to reduce impacts to aquatic resources below a level of significance (230.10(d)). Additional analyses are necessary before the Corps proceeds with the decision on the CWA Section 404 permit. In addition, the proposed action may result in substantial and unacceptable impacts to the Colorado River and Fraser River, which EPA has determined to be aquatic resources of national importance (ARNIs), pursuant to CWA Section 404(q) and Part IV(3)(a) of the 1992 Memorandum of Agreement (MOA) between EPA and the Corps regarding Section 404(q) of the Clean Water Act. EPA requests that the Corps reevaluate impacts to waters of the U.S. resulting from the proposed action, revise the proposed mitigation plans, and reconsider the availability of potential practicable alternatives prior to a determination on the permit application. **NEPA/Section 309 Rating** In accordance with EPA's policies and procedures for reviews under NEPA and Section 309 of the Clean Air Act, EPA has rated the Draft EIS as "Environmental Objections – Insufficient Information" ("EO-2"). The rating is based primarily on our concern that the Draft EIS may not contain sufficient information to fully assess the potential water quality and aquatic resources impacts, and that the preferred alternative may have significant impacts that should be avoided in order to protect the environment. In response to the Corps' request, substantial detail has been provided to support our concerns and recommendations, and is included in the Detailed Comments section of this letter. A description of EPA's EIS rating system is also enclosed. Thank you for your consideration of our input. We would like to schedule a meeting with the Corps in the next month to continue discussing resolution of the substantive issues raised in this letter. If you have any questions regarding our comments, please call me, or you may contact the following who are the most knowledgeable on this subject and can assist with coordinating a meeting date: Mr. Larry Svoboda, Director of the NEPA Compliance and Review Program at (303) 312-6004, or Mr. Bert Garcia, Director of the Ecosystem Protection Program at (303) 312-6670. Sincerely, Carol L. Campbell Acting Deputy Regional Administrator Enclosure cc: Scott Franklin, Moffat EIS Project Manager, U.S. Army Corps of Engineers Tim Carey, Denver Regulatory Office Chief, U.S. Army Corps of Engineers 6	***Comment #765-33*** *(ID 5191)**:*** *Aquatic Resources The Draft EIS does not sufficiently analyze the direct, indirect (secondary) and cumulative impacts to aquatic life, functions and values and aquatic ecosystem diversity, productivity and stability reasonably associated with the proposed discharge, as is explicitly required under the Guidelines (see 40 CFR §§ 230. 10(c), 230.11 (g) and (h)). The Draft EIS and Aquatic Resources Technical Report do not contain an analysis of impacts to aquatic resources of South Boulder Creek and other Gross Reservoir tributaries from reservoir filling. The proposed action will result in permanent impacts to 8,180 feet of perennial waters, including South Boulder Creek, Forsyth Gulch, Winiger Gulch Tributary, Winiger Gulch and an unnamed southern tributary (Draft EIS p. 4-253). In the Riparian and Wetland Areas section of Chapter 4, the Draft EIS states that this is "a major impact," yet the Draft EIS does not address any impacts on instream habitat and associated aquatic communities. This is a significant gap in the analysis of impacts. In order to adequately evaluate the appropriateness of alternatives and mitigation, and determine the Least Environmentally Damaging Practicable Alternative (LEDPA) under CWA Section 404, information on these impacts must be characterized and disclosed in the EIS and addressed in the surface water and aquatic resources sections; appropriate avoidance, minimization and mitigation must be proposed and presented in the document.* **Response #765-33:** FEIS Section 3.11 has been revised to include a description of the affected environment for aquatic resources in the Gross Reservoir tributaries. FEIS Sections 4.6.11 and 5.11 have been revised to include the impacts of the expanded Gross Reservoir on aquatic resources in the tributaries and

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	EPA's DETAILED COMMENTS MOFFAT COLLECTION SYSTEM PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT OCTOBER 2009 USE OF CURRENT VERSUS EXISTING CONDITIONS The DEIS analysis assessed environmental consequences by comparing impacts of the five action alternatives to existing conditions under the Full Use Existing System scenario, which reflects the operation of Denver Water's presumed system in year 2016 (annual average unrestricted demand of 345,000AF, maximized yield of existing water supplies, other actions/projects). The Corps has quantified the hydrologic changes between current conditions (2006) and existing conditions (2016) and presented a comparison of the hydrologic changes between 2006 and the no action and action alternatives in Appendix H. While the Draft EIS uses the hydrology for existing conditions (2016) as the baseline for the habitat modeling, the Draft EIS does not quantify other changes to the aquatic resources (e.g., invertebrate community parameters) and water quality between current conditions (2006) and existing conditions (2016). Not quantifying potential changes in aquatic resources and water quality that may occur due to additional withdrawals between 2006 and 2016 is a significant omission in the document. Based upon information presented in Appendix H of the Draft EIS, it is evident that the additional withdrawals from the Moffat Collection System between 2006 and 2016 are significant. Despite the magnitude of these additional withdrawals, there is no analysis in the Draft EIS that characterizes potential changes to the invertebrate/fish assemblages and water quality between 2006 and 2016. Currently, the existing conditions (2016) of invertebrate/fish assemblages and water quality, as presented in Chapter 3, are based upon sampling and analyses prior to 2006. Given the significant changes in operation and increases in water withdrawal between 2006 and 2016, it is inappropriate to assume that 2006 conditions (as presented in Chapter 3) represent existing conditions in 2016. The Full Use Existing System does not represent an appropriate baseline for impacts analysis, unless the 2016 condition of the aquatic resources (including population and community metrics) and water quality parameters are adequately predicted, and reflect anticipated changes between current conditions (2006) and existing conditions (2016). In the Draft EIS, water quality and aquatic resource baseline data are only provided for current conditions (reflecting operations as they were in 2006). A known and quantifiable baseline should be used to quantify project impacts. Therefore, EPA recommends that the Corps either 1) use the current conditions as a baseline for the impacts analysis, or 2) provide additional analyses that adequately quantify the changes in aquatic resources and water quality parameters consistent with the predicted changes in hydrology reflected in the 2016 scenario. 7	South Boulder Creek. Mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Comment #765-5*** *(ID 5190)**:*** *The Draft EIS does not provide a sufficient analysis of ecological impacts anticipated to occur under each alternative. In order to characterize the magnitude of direct, indirect and cumulative impacts, the Draft EIS uses five categories of impact intensity (none, negligible, minor, moderate and major), which are inconsistently applied throughout the documents and not sufficiently defined. This lack of consistency and failure to provide clear definitions for the various levels of impacts undermines the credibility of the impacts analysis. The Draft EIS states that "An assessment of impact thresholds has been provided for all resources except the surface water (Section 4.1 of the EIS) since the degree of impact is specific to each flow-related resource" (Appendix K-33), yet there is no information in the Draft EIS that describes the impact thresholds for each resource. With the information provided, we are unable to understand the scientific basis for impact categories or the magnitude of actual impacts. The current description provides no information as to how these impact categories relate to environmental or biological condition or whether uncertainty analyses, sensitivity analyses or confidence limits were used to define these thresholds for impact categories. EPA requests that the Corps define the impact categories such that they are I) based upon the actual magnitude of impact, 2) directly related to environmental or biological condition and 3) scientifically rigorous (e.g., "minor" impacts reflect a change in % Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa of XX% under the proposed action compared with existing conditions).*

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	SURFACE WATER Water Quality EPA is concerned about the use of a 15% change as the benchmark in the Draft EIS for significance of impact for water quality. On page 4-25, the Draft EIS states "According to CDPHE guidance documents, in general, if a new or increased concentration is less than 15% of the standard concentration less the existing concentration, there is no significant change (CDPHE 2001)." Essentially this means that if a change in concentration of a pollutant (or load) will consume 15% of the available assimilative capacity in a system for that pollutant, that change is considered significant by CDPHE. First, in order to utilize this approach, there would need to be a determination of the assimilative capacity of the waterbodies for pollutants that could be affected by the action alternatives. The available assimilative capacity is determined by the amount of loading from both point and nonpoint sources in the watershed compared with the allowable loading under the water quality standards. A loading analysis and determination of assimilative capacity was not accomplished for the waterbodies of interest in the Draft EIS. Instead, the Draft EIS assumes that flow changes less than 15% are essentially not significant and changes in permitted discharges that are less than 15% of the current stream-to-effluent ratio are not significant. If a waterbody is close to its assimilative capacity for a pollutant under current conditions, a small change in flow or relative increase in discharge from a point source could result in a water quality exceedance. Evaluation of solely effluent limits and discharge volumes to determine loading into a system underestimates the overall load (by excluding nonpoint source contributions) to the system and overestimates the available assimilative capacity. Hence, the use of the 15% benchmark without the understanding of assimilative capacity appears arbitrary and does not ensure an accurate analysis of significance of impact. Any change in water quality that would result in a waterbody exceeding a water quality standard (including a temperature standard or a narrative standard) is significant and will result in a 303(d) listing, TMDL analysis, and possible implementation of point and nonpoint source controls. This should be clearly explained in the Draft EIS. Regarding nutrients, there are currently no numeric water quality criteria for phosphorus for the waterbodies of interest to this project (excluding those waterbodies for which nutrients are controlled via a Control Regulation). However, Colorado's narrative standard applies. Because there are not numeric criteria for phosphorus, effluent limits for phosphorus have not been established for the majority of permitted dischargers in waterbodies affected by this project, and there has not been a low flow analysis performed for this pollutant. Currently, there are concerns that nutrient impacts are emerging in the Tri-Lakes area. This area currently may be at or exceeding its assimilative capacity for nutrients. Decreases in stream flow and increases in stream temperature could exacerbate the effects of nutrients in this system. Expected changes in nutrient flux and assimilative capacity should be explicitly discussed in order for the Draft EIS water quality evaluation to be complete and thorough. As the waterbodies in the effected areas become more and more effluent dominated, it is likely that nutrient issues will begin to emerge both directly in the receiving waters and in the downstream waters. The EIS analysis should include an evaluation of nutrient impacts and the likelihood of the 8	**Response #765-5:** The DEIS Section 4.0 states: "Impact thresholds are defined as changes in intensity in terms of the degree, level, or strength of an impact. The following thresholds are used to determine the change in intensity of impacts resulting from a Project alternative: • No impact: no discernable effect • Negligible: effect is at the lowest level of detection and causes very little or no disturbance • Minor: effect that is slight, but detectable, with some perceptible effects of disturbance • Moderate: effect is readily apparent and has measurable effects of disturbance Major: effect is readily apparent and has substantial effects of disturbance" These thresholds were applied to the magnitude (the Corps uses the word "intensity") of impact for each environmental resource/biological condition based on technical analysis and professional judgment. When possible, the impacts were quantified before an impact threshold was applied to them. For example, the aquatic biological resources analysis (FEIS Section 5.11) includes a more in-depth explanation of how impact intensity was measured and includes changes in community parameters for each level of intensity for fish and benthic macroinvertebrates. ***Comment #765-19*** *(ID 5189)**:*** *The baseline condition for the project identified in the Draft EIS lacks consideration of how past diversions have affected the aquatic resources to date. In addition, the Draft EIS underestimates the current extent of diversion impacts on aquatic*

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	alternatives resulting in the need for point source and nonpoint source controls for phosphorus as a result of loss of assimilative capacity. Another concern is related to waterbody impairments. The table below provides a summary of the segments on CDPHE's draft 2010 303(d) report that have monitoring and evaluation (M&E) and impairment listings in the watersheds that may be impacted by the action alternatives. As stated earlier, of greatest concern are the newly identified temperature impairments in Ranch Creek, the Fraser River, and the Upper Colorado segments below the confluence with the Fraser. Water withdrawals in this area will likely contribute to these temperature impairments and this impact should be analyzed and disclosed in the Draft EIS. In addition, the Fraser River contributes water to the Tri-Lakes (Lake Granby, Shadow Mountain Reservoir, and Grand Lake) via the Windy Gap diversion. Nutrient issues in the Tri-Lakes are arising as noted in the dissolved oxygen impairment listing for Shadow Mountain Reservoir. Reduction in assimilative capacity (dilution capacity) in the Fraser above Windy Gap will increase the relative quantity of wastewater treatment plant effluent and nutrients being carried in the Fraser. Therefore, water diversions carrying Fraser water through Windy Gap will likely have a higher nutrient content as a result and may cause or contribute to nutrient impacts in the Tri-Lakes. In addition to the temperature impairments, dissolved oxygen impairments, and nutrient impairments that are likely to occur, selenium impairments may be exacerbated with possible impacts on endangered species. These impairments will likely result in the need for TMDL development and evaluation of pollutant source controls and may impact permitted dischargers in the watersheds. Table I: Draft 2010 303(d) Listings in the Watersheds of Interest WBID | Segment Description | Portion | Colorado's Monitoring & Evaluation Parameter(s) | Clean Water Act Section 303(d) Impairment COLCLC01 | Colorado River, Roaring Fork River to Rifle Creek | all | sediment | COLCLC02a | Colorado River, Rifle Creek to Rapid Creek | all | sediment | COLCLC02b | Colorado River, Rapid Creek to Gunnison River | all | sediment, Se | COLCLC03 | Colorado River, Gunnison River to state line | all | | Se 9	*resources and water quality by presenting 2006 data without the broader context of cumulative flow diversions in the system. An assessment of impacts in the context of total diversion magnitude, incorporating past cumulative diversions, is necessary to accurately characterize the current and existing baseline conditions, to characterize any potential non-linear changes in aquatic resources, and to develop a plan for appropriate mitigation. Additional information on past diversions would substantially improve the impacts analysis and provide insights on the current baseline that the Draft EIS analysis lacks.* **Response #765-19:** Please see the response to Comment ID 5171. ***Comment #765-45*** *(ID 5188)**:*** *The cumulative impacts analysis does not sufficiently address potentially significant impacts to aquatic resources in the Fraser and Williams Fork Rivers and their tributaries, the Colorado River, the Blue River, and North Fork South Platte River related to the cumulative effect of flow management. Potential impacts to aquatic ecosystems, including perennial streams, associated wetlands, and aquatic habitats from present and past flow management are not sufficiently evaluated and disclosed in the analysis. Without a more robust impact analysis that includes an accurate characterization of water quality, baseline and existing conditions and a scientifically based characterization of impact intensity, the cumulative impacts section of the Draft EIS is insufficient. In order to comply with the Guidelines, a project must not cause or contribute to significant degradation of aquatic ecosystem diversity, productivity and stability, either individually or cumulatively. In the context of the Guidelines, significance does not represent a statistical standard, but reflects changes that are more than*

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		trivial. The Draft EIS states that the project's direct and indirect impacts to stream morphology, water quality and aquatic life are minor, and that cumulative effects are similar to direct effects. However, research in the Fraser River Basin and Colorado River has shown that similar past actions of diversion and alteration of flow regimes have led to significant changes in water quality and aquatic life. When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, the degradation to the aquatic ecosystems in the Williams Fork, Fraser and Colorado River Basins may reach a level that is likely to be significant, and compensatory mitigation is necessary to reduce impacts below a level of significance. **Response #765-45:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other RFFAs) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative 2032). Additional water quality analysis has been performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. For aquatic biological resources, FEIS Section 3.11 includes additional discussion of Current Conditions in the streams in the Fraser and Williams Fork river basins. That discussion incorporates additional hydrologic information from FEIS Section 3.1 concerning total diversions in the tributary streams. The revisions include discussions of non-linear past

WBID	Segment Description	Portion	Colorado's Monitoring & Evaluation Parameter(s)	Clean Water Act Section 303(d) Impairment
COUCUC03	Mainstem of the Colorado River from Lake Granby to the Roaring Fork River.	From 578 Road Bridge to just above the confluence with the Blue River		Temperature
COUCUC04	Tributaries to the Colorado River from Lake Granby to the Roaring Fork River which are on National Forest lands.	Ranch Creek		Temperature
COUCUC10c	Mainstem of the Fraser River from Hammond Ditch to the confluence with the Colorado River.	all		Temperature
COUCUC10c	Mainstem of the Fraser River, from the Hammond Ditch to the confluence with the Colorado River	From the Town of Fraser to the confluence with the Colorado River.	Cu	
COUCUC12	Lakes and Reservoirs within Arapahoe National Recreation Area including Grand Lake, Shadow Mountain Lake and Lake Granby	Shadow Mountain Lake		D.O.
COUCUC12	Lakes and Reservoirs within Arapahoe National Recreation Area including Grand Lake, Shadow Mountain Lake and Lake Granby	Lake Granby		Aquatic Life Use (Hg FCA)
COSPBO09	Mainstem of Boulder Creek, from South Boulder Creek to Coal Creek	all	Aquatic Life, Cd, As	
COSPBO10	Boulder Creek, Coal Creek to St. Vrain Creek	all	Aquatic Life, Cd	*E. coli*
COSPLS01	Mainstem of the South Platte from the Weld/Morgan County line to the Colorado/Nebraska border.	all	Aquatic Life Use	Se, Mn

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		effects (tipping points) in the tributaries. The revisions are the basis for revised discussions of impacts and cumulative impacts to aquatic biological resources in FEIS Sections 4.6.11 and 5.11. FEIS Sections 4.6.8 and 5.8 includes analysis of cumulative and Project-related effects of river flow changes on riparian and wetland areas along the river segments. ***Comment #765-44*** *(ID 5187)**:*** *Mitigation EPA is concerned that the mitigation as currently proposed in Appendix M of the Draft EIS does not compensate for the likely adverse impacts associated with this project per 40 CFR § 230.10(d). The Draft EIS states that direct impacts to waters of the U.S. include permanent loss of 8,356 linear feet of perennial streams and 1.95 acres of wetlands. The current proposed mitigation for the perennial stream impacts is an additional 5,000 AF environmental pool at Gross Reservoir, which would provide enhancement flows to 17 miles of South Boulder Creek downstream of the reservoir. This proposal would provide great benefit for the fishery in South Boulder Creek. However, because none of the direct impacts to the aquatic resources in the tributaries of Gross Reservoir were disclosed in the Draft EIS, EPA is unable to determine whether the proposed enhancement alone is sufficient to offset the major impacts associated with inundating riffle and pool complexes of South Boulder Creek, Forsythe Gulch, Winiger Gulch and its tributary, and the unnamed southern tributary to Gross Reservoir. In the event that the proposed mitigation is insufficient to offset the permanent direct impacts of an enlarged Gross Reservoir, additional mitigation and adaptive management options must be required as part of the final authorized project. Additional mitigation options are discussed in the detailed comments section of this letter.*

WBID	Segment Description	Portion	Colorado's Monitoring & Evaluation Parameter(s)	Clean Water Act Section 303(d) Impairment
COSPMS01a	South Platte River from Big Dry Creek to St. Vrain Creek	all		*E.coli*
COSPMS01b	South Platte River from St. Vrain Creek to Weld/Morgan County Line	all		Se
COSPMS04	Barr Lake and Milton Reservoir	all		pH, NH_3
COSPMS04	Barr Lake and Milton Reservoir	Barr Lake	D.O.	
COSPMS04	Barr Lake and Milton Reservoir	Milton Reservoir		D.O.
COSPUS14	S. Platte River	all		As
COSPUS15	S. Platte River, Burlington Ditch to Big Dry Creek	all		*E. coli*
COSPUS15	S. Platte River, Burlington Ditch to Big Dry Creek	Burlington Ditch to Clear Creek		Cd
COSPUS19	Lakes and reservoirs tributary to the Upper South Platte River from headwaters to Chatfield Reservoir.	Tarryall Reservoir, Cheesman Reservoir, Elevenmile Reservoir, Spinney Mountain Reservoir	D.O.	

A discussion of these impairments should be included in the EIS analysis, with the potential for the no action and action alternatives to contribute to these impairments disclosed. Any change to an upstream segment that influences assimilative capacity for an impaired downstream segment should be considered a significant impact. Hence, downstream impairments should be evaluated and discussed as well as those identified for the affected segments.

Another area of concern is that the Draft EIS does not address potential organism transfers that may result from the no action and action alternatives. The document should discuss whether or not there is potential for nonnative and native species transfer or exacerbation of current

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	conditions between watersheds. The document should also examine whether or not this has occurred as a result of past diversion activities. Finally, in the water quality assessment, the Draft EIS applies the 85th percentile of data to compare to the water quality metals standards to determine support of aquatic life beneficial use. Additionally, a hardness value is selected for the waterbodies to calculate the hardness dependent standards when applicable. The document should include an explanation as to the selection of hardness values for calculation of the Table Value Standard (TVS) for each waterbody evaluated, an analysis of attainment against chronic standards using the 85th percentile data (or as required for the chronic standard), and an evaluation of attainment of acute standards using the maximum values and paired hardness values. The Draft EIS needs to make the comparison to standards clearer using the correct portion of the data set. Currently, the document does not provide a determination of attainment of acute standards. It is possible for a waterbody to be in attainment of chronic standards at the 85th percentile of the data and still exceed the acute standard more than the allowable once in three year frequency. **Stream Morphology** EPA is concerned that the proposed action will affect numerous riffle and pool complexes which are special aquatic sites (40 CFR § 230.45), both through direct inundation from reservoir expansion and additional dewatering of streams in the Fraser and Williams Fork Basins. Expansion of Gross Reservoir will eliminate riffle and pool complexes in South Boulder Creek, Forsythe Gulch, Winiger Gulch and its tributary, and the unnamed southern tributary to Gross Reservoir. Previous research has shown that streams with cumulative diversion magnitude of 90% and greater have significant shifts in riffle/pool ratios, with increases in pool habitat[1]. EPA is concerned that the proposed action, in combination with past, present and projected future withdrawals, may lead to cumulative diversion magnitudes greater than 90% and contribute to significant degradation of special aquatic sites in West Slope streams. According to the Guidelines, activities which affect riffle/pool ratios may reduce the aeration and filtration capabilities of these complexes, may reduce stream habitat diversity and may retard aquatic species repopulation of waters through sedimentation and the creation of unsuitable habitat (40 CFR § 230.45(b)). **GROUNDWATER** **Conceptual Model** EPA appreciates the consideration of and response to our previously submitted groundwater comments, and we agree that the conceptual hydrologic model for the Fraser watershed demonstrates that there is no change in recharge above the diversions and in the northwest part of the watershed. However, below the diversions, there may be impacts to [1] Albano, C.M. (2006) Structural *and Functional Responses of Aquatic Macroinvertebrate Communities to Streamflow Diversion in Rocky Mountain Streams.* Masters Thesis, Colorado State University, Fort Collins, Colorado. 12	**Response #765-44:** FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued, and the EPA suggested mitigation options will be considered. ***Comment #765-43*** *(ID 5186)**:*** *In accordance with the Guidelines, any project that causes or contributes to significant degradation, even if the contributions are 'minor' as stated in the Draft EIS, requires compensatory mitigation in order to reduce those impacts below a level of significance. There are available mitigation opportunities that the Corps should consider to offset the significance of the impacts and minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River Basins. These mitigation options are described in our detailed comments. In general, a mitigation plan for this project should include a monitoring and adaptive management plan for impacts to water quality, groundwater, stream morphology and aquatic life so that if impacts greater than those discussed in the Draft EIS are found, mitigation measures can be implemented. Details of the mitigation plan should be disclosed and included in the Final EIS and Record of Decision to satisfy both NEPA and CWA Section 404 permit requirements.* **Response #765-43:** Mitigation will be described and included as part of a Section 404 Permit. ***Comment #765-3*** *(ID 5185)**:*** *Section 404 Compliance Determination EPA is providing comments on the public notice for the*

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	groundwater. Specifically, removal of water from the Fraser River and its tributaries may impact groundwater levels, public and private wells, and wetlands, and those impacts should be evaluated. The conceptual model presented in the Draft EIS suggests that in the Fraser River and along the narrow alluvial channels of the tributaries to the Fraser River there is no interaction between the streams/river and alluvium or between alluvium and bedrock, and that the ground water is always recharging surface water, and thus impacts to groundwater will be minimal. However, the model does not accurately represent the interplay between groundwater and surface water in a watershed because it does not recognize the fact that there will be areas where surface water is recharging groundwater, at least during portions of the year. Therefore the removal of surface water may impact ground water levels. The Apodaca and Bails paper[2] cited in the Draft EIS Groundwater Section 4.2 illustrates ground water recharging the tributaries. However, the study provides only a very generalized map with 100-foot contour lines, very few data points, and was completed in the fall timeframe when it is expected that groundwater will recharge surface water. There will be locations along the tributaries and the main stem where surface water is recharging groundwater, particularly during high flow months. The Grand Environmental Services Report[3] shows direct connection between alluvial groundwater/wetlands and the Fraser River. **Impact on Water Levels in Wells** The potential for impacts to wells (public water supplies and domestic wells) has not been addressed in the Draft EIS. EPA recommends that information regarding well locations, screened interval, depth, geology, and water levels for private and public wells be disclosed, and an impacts analysis based on this information be performed. For example, an estimate of potential future impacts could be derived from an analysis of groundwater levels before diversions and over time until present. Any analysis performed should also include an evaluation of groundwater quality. On page 4-207, the Draft EIS states: "sewage effluent may impact ground water well users," but "natural attenuation" will address this potential impact. Because the proposed project will result in less flow to dilute contaminants from sewage effluent and septic tanks in surface water and groundwater, such a conclusion should be quantitatively substantiated. It is recommended that the proponent include ongoing monitoring of water levels and water quality in select monitoring wells and appropriate mitigation if well users or wetlands are impacted by the diversion. [2] Apodaca, L.E. and J.B. Bails. 1999. Fraser River Watershed, Colorado – Assessment of Available Water-Quantity and Water-Quality Data Through Water Year 1997, USGS WRIR 98-4255. [3] Grand Environmental Services, 2008. Final Baseline Hydrology Report for Compensatory Wetland Mitigation Plan, Town of Winter Park Shops Expansion Project. USACE SPK-2008-752 13	*District's CWA Section 404 permit application for this project, which the Corps circulated for public review concurrently with the Draft EIS. The Corps intends for the Draft EIS to address compliance with the Section 404(b)(I) Guidelines, 40 CFR Part 230. The Draft EIS has not provided sufficient information to determine compliance with the Guidelines in accordance with 40 CFR § 230.10 due to: I) inadequate analysis regarding the availability of less environmentally damaging practicable alternatives (230.10(a)) 2) inadequate information and analysis regarding potential violations of state water quality standards (230.10(b)), 3) inadequate information and analysis regarding the potential for the proposed action to cause or contribute to significant degradation of waters of the U.S. (230. I O(c)), and 4) insufficient information to determine adequate mitigation, and the mitigation proposed is not sufficient to reduce impacts to aquatic resources below a level of significance (230.10(d)). Additional analyses are necessary before the Corps proceeds with the decision on the CWA Section 404 permit.* **Response #765-3:** The Corps notes the comment. Responses to comments pertaining to alternatives analysis, water quality, degradation to waters of the U.S., and mitigation are presented throughout the responses to this comment letter in correlating locations. ***Comment #765-4** (ID 5184):* *In addition, the proposed action may result in substantial and unacceptable impacts to the Colorado River and Fraser River, which EPA has determined to be aquatic resources of national importance (ARNIs), pursuant to CWA Section 404(q) and Part IV(3)(a) of the 1992 Memorandum of Agreement (MOA) between EPA and the Corps regarding Section 404(q) of the Clean Water Act. EPA requests that the Corps reevaluate impacts to waters of the U.S. resulting from the proposed*

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	AQUATIC BIOLOGICAL RESOURCES **Direct and Indirect Impacts** ***Characterization of Impact Intensity:*** The Draft EIS needs to clearly elaborate on criteria used to categorize impacts and apply these criteria consistently throughout the document. Based on EPA's review, the Draft EIS does not contain a scientifically based assessment of impact thresholds to define the categories of impact intensity, as Appendix K indicates has been done. The inconsistencies within the document are misleading and confusing for reviewers and further lead to the potential for project impacts to not be objectively disclosed. The Draft EIS states that "impacts on benthic invertebrate community parameters were evaluated based on the available hydrology, geomorphology, and water quality information" (ARTR page 16). No additional information was provided as to how the hydrology, geomorphology and water quality data were used to determine impacts to aquatic invertebrates, or how the thresholds for impact categories were defined. Also, the document only presents data on current conditions (2006) of invertebrate density and number of taxa, and fails to elucidate changes in these metrics under existing conditions (2016) or with future expected and proposed actions. Only a qualitative discussion is presented in Chapter 4 of the Draft EIS to support the intensity of impact for each waterbody and alternative. For aquatic invertebrates, as well as all other aquatic resources, EPA requests that the methodology and results of any analyses on changes in aquatic resources be provided in the document along with clearly defined 'thresholds' for each impact category. The disclosed level of project impacts varies between sections of the Draft EIS, which indicates that a consistent interpretation of impact intensity was not applied throughout the Draft EIS. For example, the Draft EIS states that, *"Moffat Project alternatives would have **none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments**. Exceptions include minor adverse impacts to fish and invertebrates in South Boulder Creek upstream of Gross Reservoir, and the North Fork South Platte River which could experience increased flows and increased concentrations of copper"* (Draft EIS pages 5-46, 5-47, emphasis added). This is contrary to the information presented in Draft EIS Section 4.9, which states that there would be **minor adverse impacts** associated with the project for all stream segments except St. Louis Creek, Vasquez Creek, the Englewood diversions, and several segments of the Fraser River. For another example, the Draft EIS states that, *"Cumulative impacts to aquatic resources would be **negligible**, except for **minor adverse impacts** to fish and invertebrates in the North Fork Ranch Creek (tributary of the Fraser River), McQueary, Jones, Bobtail, and Steelman creeks (tributaries of the Williams Fork River)"* (Draft EIS page 5-47, emphasis added). It then states, *"Most streams would experience **minor** effects to fish and aquatic resources. Exceptions to this include some of the upper tributaries of both the Williams Fork and the Fraser rivers where **moderate impacts** to fish could be expected due to lower flows"* (Draft EIS page 5-56, emphasis added). 14	*action, revise the proposed mitigation plans, and reconsider the availability of potential practicable alternatives prior to a determination on the permit application.* **Response #765-4:** Please see the response to Comment ID 5145. ***Comment #765-35*** *(ID 5183)**:*** *NEPA/Section 309 Rating In accordance with EPA's policies and procedures for reviews under NEPA and Section 309 of the Clean Air Act, EPA has rated the Draft EIS as "Environmental Objections Insufficient Information" ("EO-2"). The rating is based primarily on our concern that the Draft EIS may not contain sufficient information to fully assess the potential water quality and aquatic resources impacts, and that the preferred alternative may have significant impacts that should be avoided in order to protect the environment. In response to the Corps' request, substantial detail has been provided to support our concerns and recommendations, and is included in the Detailed Comments section of this letter. A description of EPA's EIS rating system is also enclosed. Thank you for your consideration of our input. We would like to schedule a meeting with the Corps in the next month to continue discussing resolution of the substantive issues raised in this letter. If you have any questions regarding our comments, please call me, or you may contact the following who are the most knowledgeable on this subject and can assist with coordinating a meeting date: Mr. Larry Svoboda, Director of the NEPA Compliance and Review Program at (303) 312-6004, or Mr. Bert Garcia, Director of the Ecosystem Protection Program at (303) 3126670.* **Response #765-35:** The Corps acknowledges the "EO-2" rating given by the EPA and performed additional studies to more fully assess the potential water quality and aquatic

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	Characterizing impacts in the context of total diversion magnitude: Current baseline conditions of the system have not been appropriately characterized in the DEIS, as they do not consider how past diversions and flow management have affected water quality and aquatic life to date. Also, non-linear changes may occur at higher magnitudes of total diversion, where an incremental increase in diversion magnitude may not lead to incremental changes in the aquatic community, but instead may lead to disproportionate adverse changes. EPA requests that the Corps include expanded analyses to include information on deviation from natural, or virgin, flows in order to characterize how the current magnitude of flow diversion in the Moffat Collection System affects aquatic life and water quality and any potential non-linear changes in the aquatic ecosystem. Currently, the Draft EIS presents information on the change in flows between current conditions and full use existing conditions, and the change in flows between full use existing conditions and the no action and action alternatives. The disclosure of the current magnitude of flow diversion, compared with natural flows is not included in the Draft EIS (e.g., what percent of monthly virgin flows are currently diverted), but it should be included as it is relevant to understanding the current baseline conditions and potential impacts of the proposed action on aquatic communities. As Denver Water Board diversions have existed on West Slope streams for decades and have modified the aquatic ecosystem significantly, information on natural flows is necessary to characterize the current baseline status of aquatic organisms and their habitat under the human-modified current and existing conditions. EPA requests that the monthly natural flows and the difference between the natural flows and current /existing conditions (e.g., percentage of monthly natural flows diverted under current and existing conditions) be presented for each diversion site or PACSIM modeling node so that a scientifically based baseline is disclosed. The baseline aquatic life and water quality conditions have not been appropriately characterized. For example, in Chapter 3, the document uses research to indicate that the effects of flow diversion on aquatic organisms in the Fraser River Basin and analogous systems can have varying effects and that the communities in these streams can be very tolerant to flow removal (Draft EIS page 3-223). What the discussion fails to capture is that the referenced studies showed statistically significant differences between diverted streams and their free-flowing reference sites, indicating that these aquatic communities are currently impacted by flow diversions. Additionally, Chapter 3 presents data collected below diversions prior to 2006, but does not provide any analysis or discussion as to how these data may be indicative of degraded conditions. For example, the DEIS presents data on native fish, which were present several of the Fraser tributaries in 1993 sampling events, but not in any subsequent events, yet provides no discussion as to why that may be the case. Also, the Draft EIS states that many of the same benthic invertebrate groups present in 2007 were also present in 1985 (page 3-221), but provides no discussion as to whether the invertebrate taxa that are no longer present are indicative of altered habitat conditions. EPA requests that future NEPA documentation provide discussion and analysis to illustrate how past diversions have affected aquatic resources to date. When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, it is likely that the degradation to the aquatic ecosystem will reach a level that is likely to be significant (per 40 CFR § 230.24). 15	biological resources effects, and to more clearly understand the Project impacts. The Corps also held meetings with EPA to further discuss resolution of the issues raised in the referenced letter. ***Comment #765-18*** *(ID 5182)**:*** *EPA's DETAILED COMMENTS MOFFAT COLLECTION SYSTEM PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT OCTOBER 2009 USE OF CURRENT VERSUS EXISTING CONDITIONS The DEIS analysis assessed environmental consequences by comparing impacts of the five action alternatives to existing conditions under the Full Use Existing System scenario, which reflects the operation of Denver Water's presumed system in year 2016 (annual average unrestricted demand of 345,000 AF, maximized yield of existing water supplies, other actions/projects). The Corps has quantified the hydrologic changes between current conditions (2006) and existing conditions (2016) and presented a comparison of the hydrologic changes between 2006 and the no action and action alternatives in Appendix H. While the Draft EIS uses the hydrology for existing conditions (2016) as the baseline for the habitat modeling, the Draft EIS does not quantify other changes to the aquatic resources (e.g., invertebrate community parameters) and water quality between current conditions (2006) and existing conditions (2016). Not quantifying potential changes in aquatic resources and water quality that may occur due to additional withdrawals between 2006 and 2016 is a significant omission in the document. Based upon information presented in Appendix H of the Draft EIS, it is evident that the additional withdrawals from the Moffat Collection System between 2006 and 2016 are significant. Despite the magnitude of these additional withdrawals, there is no analysis in the Draft EIS that characterizes potential changes to the*

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	The Guidelines highlight the need to assess 'Normal water fluctuations in a natural aquatic system' as part of the factual evaluations to determine whether a project causes or contributes to significant degradation of waters of the U.S. (40 CFR § 230.24). As stated in the Guidelines, altering the normal water-level fluctuation pattern of an area, resulting in prolonged periods of inundation, exaggerated extremes of high and low water, or a static non-fluctuating water level, can alter or destroy communities and populations of aquatic animals and vegetation, induce populations of nuisance organisms, modify habitat, reduce food supplies, restrict movement of aquatic fauna, destroy spawning areas, and change adjacent, upstream, and downstream areas. In the Draft EIS, information on natural flows, and the current deviation from natural, is not presented and thus, the relevant flow data to characterize the current/existing baselines and quantify impacts is absent. Characterizing impacts in the context of total diversion magnitude will provide relevant information to assess potential threshold, or non-linear, impacts. The current ecological research suggests that the invertebrate response, and changes in habitat and water quality, can be variable depending on the magnitude of diversion[4]. For example, Rader and Belish[5] found that where flow was diverted 25% of natural, there was an increase in invertebrate density, but where flows were diverted more than 90%, there were significant declines in density and species richness. Cowx et al.[6] found that with a 60% flow reduction, there was an increase in temperature and decreases in wetted width and invertebrate density. Based upon numerous studies that show a suite of environmental and community responses following varying magnitudes of flow depletion, it is likely that at levels of flow reduction greater than 50%, the ecological response to additional incremental water withdrawal may not be linear. In other words, at diversions of this magnitude and greater, the incremental increase in diversion magnitude may not lead to incremental changes in the aquatic community, but instead may lead to disproportionate adverse changes. For example, an additional diversion of 10% between existing conditions and the proposed project may have a 'minor' impact, based upon the analyses currently employed in the Draft EIS. However, if the system is already diverted by 85%, that additional 10% diversion may lead to significant changes in the aquatic resources in the stream – and an impact that may no longer be considered 'minor.' Based upon the available literature, a coarse framework could be developed to characterize the risk for potential non-linear responses. As the scientific literature points to potential disproportionate impacts beyond certain magnitudes of diversion, information on the current deviation from natural conditions is necessary to potentially characterize potential threshold impacts associated with the project alternatives. EPA has already conducted a cursory literature review on the ecological changes associated with varying magnitudes of flow diversion [4] Dewson, Z.S., A.B.W. James, and R.G. Death. 2007. A review of the consequences of decreased flow for instream habitat and macroinvertebrates. *Journal of the North American Benthological Society*, 26: 401-415. [5] Rader, R.B. and T.A. Belish. 1999. Influence of mild to severe flow alterations on invertebrates in three mountain streams. *Regulated Rivers: Research and Management*, 15: 686-363. [6] Cowx, I.G., W.O. Young, and J.M. Hellawell. 1984. The influence of drought on the fish and invertebrate populations of an upland stream in Wales (UK). *Freshwater Biology* 14(2): 165-178. 16	*invertebrate/fish assemblages and water quality between 2006 and 2016. Currently, the existing conditions (2016) of invertebrate/fish assemblages and water quality, as presented in Chapter 3, are based upon sampling and analyses prior to 2006. Given the significant changes in operation and increases in water withdrawal between 2006 and 2016, it is inappropriate to assume that 2006 conditions (as presented in Chapter 3) represent existing conditions in 2016. The Full Use Existing System does not represent an appropriate baseline for impacts analysis, unless the 2016 condition of the aquatic resources (including population and community metrics) and water quality parameters are adequately predicted, and reflect anticipated changes between current conditions (2006) and existing conditions (2016). In the Draft EIS, water quality and aquatic resource baseline data are only provided for current conditions (reflecting operations as they were in 2006). A known and quantifiable baseline should be used to quantify project impacts. Therefore, EPA recommends that the Corps either I) use the current conditions as a baseline for the impacts analysis, or 2) provide additional analyses that adequately quantify the changes in aquatic resources and water quality parameters consistent with the predicted changes in hydrology reflected in the 2016 scenario.* **Response #765-18:** Please see the response to Comment ID 5194. Total Impacts to resources between 2006 and 2032 were be quantified so that Full Use of the Existing System conditions could be adequately predicted and quantified. ***Comment #765-50*** *(ID 5181)**:*** *SURFACE WATER Water Quality EPA is concerned about the use of a 15% change as the benchmark in*

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	and would like to work with the Corps to develop a framework for assessing potential non-linear responses. For example, if under existing conditions, the flow reduction is 25% of virgin flows, and the proposed action increases the diversion to 35%, the project impact may be negligible; however if under existing conditions, the flow reduction is 85%, and the proposed action increases the diversion to >90% flow reduction, the project impact may be major. ***Appropriate methodologies for determining impacts of flow diversion on West Slope streams:*** EPA has concerns about the methodologies provided in the Draft EIS to assess impacts to aquatic resources. The analysis does not fully address anticipated changes in invertebrate community parameters and should be expanded to include additional community metrics. Also, EPA is concerned that the analysis of instream habitat is based solely on measures of minimum habitat availability and requests that the Corps expand the analysis to include other habitat characteristics, including heterogeneity and quality, and incorporate a risk-based approach or an effective habitat time series analysis to assess time series changes in populations. These comments are consistent with our concerns outlined in EPA's comment letter for the Agency Review Draft dated January 31, 2009. Each of these concerns and requests is outlined in greater detail below. 1) Appropriate metrics for analysis: In the Draft EIS, the only community parameters used were species richness and density. EPA is concerned that these metrics alone may not be appropriate to characterize the impacts of flow diversion associated with the proposed action. EPA requests that the Corps expand the analysis to include additional community metrics that address changes in the functional composition of species assemblages. These analyses should include, at a minimum, a characterization of community metrics, including dominance, evenness and % Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa. The analysis should also include a discussion of the potential impacts on aquatic organisms of extended dry years, including potential changes in aquatic communities, populations, life history traits and survival. These additional analyses should not require any additional data collection, just re-analysis of existing data. Species richness values reflect the total number of taxa present, but this metric is not effective in capturing potential changes in community composition due to an altered flow regime. For example, the total number of taxa may not change significantly following flow diversion, but types of invertebrate and fish taxa may shift to species less tolerant of the natural flow regime that have *not* adapted to survive in systems with high magnitude spring peak flows. Research has shown that reduced flows affects community composition, where species adapted to the natural flow regime may be displaced by other dominant, generalist species that are less tolerant to seasonally high flows[4,7]. In the absence of a diverse native fish community in these streams, the functional composition of invertebrates is an important indicator of ecosystem change and the ability of the system to maintain healthy aquatic life. As such, additional emphasis should be placed on quantifying potential impacts to invertebrate community parameters. [7] Poff, N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegaard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The Natural Flow Regime: A Paradigm for River Conservation and Restoration. *BioScience* 47(11): 769-784. 17	*the Draft EIS for significance of impact for water quality. On page 4-25, the Draft EIS states "According to CDPHE guidance documents, in general, if a new or increased concentration is less than 15% of the standard concentration less the existing concentration, there is no significant change (CDPHE 2001)." Essentially this means that if a change in concentration of a pollutant (or load) will consume 15% of the available assimilative capacity in a system for that pollutant, that change is considered significant by CDPHE. First, in order to utilize this approach, there would need to be a determination of the assimilative capacity of the waterbodies for pollutants that could be affected by the action alternatives. The available assimilative capacity is determined by the amount of loading from both point and nonpoint sources in the watershed compared with the allowable loading under the water quality standards. A loading analysis and determination of assimilative capacity was not accomplished for the waterbodies of interest in the Draft EIS. Instead, the Draft EIS assumes that flow changes less than 15% are essentially not significant and changes in permitted discharges that are less than 15% of the current stream-to-effluent ratio are not significant. If a waterbody is close to its assimilative capacity for a pollutant under current conditions, a small change in flow or relative increase in discharge from a point source could result in a water quality exceedance. Evaluation of solely effluent limits and discharge volumes to determine loading into a system underestimates the overall load (by excluding nonpoint source contributions) to the system and overestimates the available assimilative capacity. Hence, the use of the 15% benchmark without the understanding of assimilative capacity appears arbitrary and does not ensure an accurate analysis of significance of impact. Any change in water quality that would result in a waterbody exceeding a water quality standard*

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	In the literature, the response of density metrics to flow diversion has been variable, in part due to changes in community composition, the severity of flow reduction, reductions in habitat area, and the magnitude of change to habitat suitability[4]. For example, density may not change with reductions in flow, but the overall habitat area is reduced which means that organisms become concentrated in a smaller area. Therefore, the overall abundance of organisms, and consequent ecosystem productivity, in the affected stream segments may potentially decline, despite a lack of change in density metrics. Because of the confounding factors associated with flow diversion and density metrics, EPA requests that future NEPA documentation use the community metrics proposed above to characterize impacts in addition to density. 2) Instream Habitat analyses: EPA is concerned that impacts to aquatic resources are based mainly upon a measure of "minimum habitat availability." The quantitative model called Instream Flow Incremental Methodology (IFIM) was used to assess habitat availability for fish at different flows. This methodology is used to determine whether the weighted usable area (in square feet) is suitable over a distinct segment of stream, and assess whether minimum habitat availability is impacted by the proposed action and other alternatives. While this methodology is useful to reveal when conditions become unsuitable for various species or life stages, it fails to assess whether all necessary habitat parameters are present for survival, including habitat for prey, connectivity to refugia, suitable water quality, and food web relationships. A risk-based analysis of flows, water quality and habitat changes would be more appropriate to characterize project impacts than IFIM alone. In a risk-based approach, a range of possible outcomes could be modeled by assessing the interaction of multiple factors on fish communities. The results from this IFIM methodology suggest that reducing the spring snowmelt peak flows is beneficial to aquatic communities in segments of Vasquez Creek and the Fraser River, stating that lower runoff would tend to provide increased habitat availability in average and wet years. The scientific literature has consistently shown that the role of floods and spring snowmelt peak flows in long-term maintenance of instream habitat, aquatic insect diversity, native fish species and ecosystem productivity is much more critical to fish and invertebrate communities than the short-term negative effects on their habitat. In the Fraser Basin, research has shown that moderate flow events, occurring in an unaltered flow regime approximately every 5-10 year, have been shown to be critical in maintaining stream morphology in diverted sub-alpine streams[8]. Therefore, the preservation of peak flows in spring runoff periods is critical to habitat maintenance, and thus the Draft EIS needs to characterize potential impacts to aquatic resources associated with a reduced magnitude and/or frequency of spring snowmelt peak flows, including potential changes to riffle-pool complexes or habitat availability associated with vegetation encroachment. Additionally, if there are long-term changes in flow regime, compared with the flow regime when data were collected for the IFIM studies, due to decreases in magnitude or duration of peak flows, the habitat information may no longer apply. Alone, this methodology is insufficient to characterize the impacts of this project, and should be used in combination with a [8] Ryan, S. 1997. Morphologic Response of Subalpine Streams to Transbasin Flow Diversion. *Journal of the American Water Resources Association*, 33: 839-854. 18	*(including a temperature standard or a narrative standard) is significant and will result in a 303(d) listing, TMDL analysis, and possible implementation of point and nonpoint source controls. This should be clearly explained in the Draft EIS.* **Response #765-50:** Multiple criteria were used for the DEIS to identify stream segments for analysis within the Project study area, including: • Segments with ambient conditions (typically 15th or 85th percentile) exceeding numeric water quality standards as delineated in CDPHE Regulations. • Segments listed on the Section 303(d) List, the Monitoring and Evaluation List, or having a total maximum daily load (TMDL). • Segments with PACSM flow increasing or decreasing by 15% or more in wet, dry and/or average years. Determining assimilative capacity for all stream segments affected in the Blue, Colorado, Fraser, North Fork South Platte, South Platte, and South Boulder Creek basins is infeasible, in part because water quality data is not available for many segments of those basins. The 15% criteria is one screening criteria used to highlight those stream segments most likely to be affected by the Project and provides a focus for evaluation in the EIS. ***Comment #765-49*** *(ID 5180)**:*** *Regarding nutrients, there are currently no numeric water quality criteria for phosphorus for the waterbodies of interest to this project (excluding those waterbodies for which nutrients are controlled via a Control Regulation). However, Colorado's*

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	risk-based approach as described in the previous paragraph or expanded to include an effective habitat time series analysis to assess time series changes in populations. *Technical concerns:* The Aquatic Resources Technical Report presents habitat information for all stream segments in the Fraser River basin and characterizes each stream as "mildly" or "severely" diverted. The report does not provide the reader with definitions of "mild" and "severe" diversions in relation to stream flows, and instead arbitrarily bases the definition on aquatic community response. For example, despite the fact that there are no bypass flows on Middle Fork Ranch Creek, the report states "this stream appears to be a "mildly" diverted stream due to the presence of a diverse invertebrate population" (ARTR page 41). Similar statements were made for West Elk Creek, Jim Creek, and Meadow Creek. The fact that the invertebrate populations are diverse may arguably be dependent upon the stream flows, but the magnitude of streamflow diversion is certainly not dependent on the invertebrate community that stream supports. The severity of diversion should be defined based upon stream flow (e.g., streams without bypass flows are "severely" diverted) and the document should be edited to reflect this. **Cumulative Impacts** Additional information on past diversions would substantially improve the cumulative impacts analysis and provide insights on the current baseline that the current analysis lacks. The current conditions reflect a severely altered system, as significant past and present water withdrawals already adversely impact the aquatic community. Any additional impacts, either between 2006 and 2016 or following implementation of the proposed project, could lead to significant changes to the aquatic resources and water quality of the Fraser River Basin. Because the system is already substantially altered, additional diversions, whether "minor" or more substantial, will likely cause or contribute to significant degradation and could potentially lead to non-linear changes in the ecological system, per 40 CFR § 230.10(c). As stated above, the scientific literature points to potential disproportionate impacts beyond certain magnitudes of diversion, suggesting that at greater percentages of diversion, the ecological response to additional incremental water withdrawal may no longer be linear. Therefore, an understanding of the disparity between the current baseline conditions and the natural conditions can aid in assessing the overall degradation of the system. Disclosure of natural flows is necessary to characterize the cumulative impacts of diversions in the basin, per 40 CFR § 230.24. The Draft EIS has limited discussion on climate change and generally dismisses influences as too uncertain due to a variety of potential impact outcomes. However, potential reductions and/or temporal changes in natural runoff and flow have been identified in various research documents as potential effects from climate change. Therefore, it is reasonable to consider this degree of uncertainty in operational design and analysis of this project, and a model should be developed that analyzes a scenario where flows are reduced substantially as a result of climate change. At a minimum, the Draft EIS should include consideration of potential climate change influences on hydrology being described in the Colorado Water Conservation Board's "Colorado River Water Availability Study" (to be available for public review in March 2010). Estimates of potential incremental changes in hydrology due to climate change influences should be included in the cumulative impacts analysis and mitigation design. 19	*narrative standard applies. Because there are not numeric criteria for phosphorus, effluent limits for phosphorus have not been established for the majority of permitted dischargers in waterbodies affected by this project, and there has not been a low flow analysis performed for this pollutant. Currently, there are concerns that nutrient impacts are emerging in the Tri-Lakes area. This area currently may be at or exceeding its assimilative capacity for nutrients. Decreases in stream flow and increases in stream temperature could exacerbate the effects of nutrients in this system. Expected changes in nutrient flux and assimilative capacity should be explicitly discussed in order for the Draft EIS water quality evaluation to be complete and thorough. As the waterbodies in the affected areas become more and more effluent dominated, it is likely that nutrient issues will begin to emerge both directly in the receiving waters and in the downstream waters. The EIS analysis should include an evaluation of nutrient impacts and the likelihood of the alternatives resulting in the need for point source and nonpoint source controls for phosphorus as a result of loss of assimilative capacity.* **Response #765-49:** Additional analysis has been performed on the Fraser River and the Three Lakes area, including nutrient and temperature analysis. Please refer to FEIS Sections 4.6.2 and 5.2. The waterbodies of interest are not effluent dominated, as demonstrated in DEIS Tables 4.1-4 through 4.1-7. ***Comment #765-48*** *(ID 5179)**:*** *Another concern is related to waterbody impairments. The table below provides a summary of the segments on CDPHE's draft 2010 303(d) report that have monitoring and evaluation (M&E) and impairment listings in the watersheds that may*

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	MITIGATION AND MONITORING The impacts of greatest concern include the potential adverse changes to the aquatic ecosystem following the inundation of an expanded Gross Reservoir on its perennial tributaries and the impacts to aquatic ecosystems resulting from diversion of additional flows and other changes in flow management in the Williams Fork, Fraser, Colorado, Blue and North Fork South Platte River Basins. The Draft EIS states: "For all action alternatives, additional Denver Water diversions would occur in average and wet years and would be highly concentrated during the runoff months in May, June, and July" (Draft EIS page ES-16). It is important to note that the majority of streams with Denver Water Board diversions will have additional diversions other times of the year, including winter, as part of this project. EPA is concerned that the current baseline conditions and impacts associated with this project have not been adequately assessed, disclosed or mitigated. The proposed mitigation of impacts in Appendix M of the Draft EIS does not adequately compensate for the impacts associated with this project. As stated above, the impacts analysis used to determine indirect (secondary) and cumulative impacts to water quality and aquatic resources is insufficient, should be substantially revised, and the revised conclusions need to be disclosed and used to determine the appropriate scope of mitigation. Without an adequate characterization of impacts associated with the proposed action, it is not possible to propose an appropriate level of mitigation to offset impacts. According to 40 CFR § 1508.2, mitigation is an essential tool for agencies to use to avoid, minimize, rectify, reduce, or compensate for any adverse environmental impacts associated with their actions. Through the NEPA process, adequate mitigation measures should be transparent and consider future environmental impacts so that monitoring activities are designed and implemented to measure effectiveness. NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." (42 USC § 4332(2)(E)). Concerns regarding environmental impacts and the lack of adequate mitigation are described below. Pursuant to 33 CFR § 332.4 and 40 CFR § 230.94, *Compensatory Mitigation for Losses of Aquatic Resources*, a compensatory mitigation plan must be submitted and approved by the Corps before the District Engineer can issue an Individual CWA Section 404 permit. In accordance with the Guidelines, a permittable project must not cause or contribute to significant degradation, either individually or cumulatively, of the biological, physical and chemical characteristics of the aquatic ecosystem, special aquatic sites (e.g., riffle and pool complexes) and human use characteristics (e.g., recreational and commercial fisheries, water-related recreation and aesthetics). When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, the degradation to the aquatic ecosystem in the Williams Fork, Fraser and Colorado River Basins may reach a level that is likely to be significant. Any project that contributes to this significant degradation, even if the contribution is 'minor' as stated in the Draft EIS, requires compensatory mitigation in order to reduce those impacts below a level of significance, or is not in compliance with Part 230.10(c) of the Guidelines. There are available mitigation opportunities that may offset the significance of the impacts and minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River 20	*be impacted by the action alternatives. As stated earlier, of greatest concern are the newly identified temperature impairments in Ranch Creek, the Fraser River, and the Upper Colorado segments below the confluence with the Fraser. Water withdrawals in this area will likely contribute to these temperature impairments and this impact should be analyzed and disclosed in the Draft EIS. In addition, the Fraser River contributes water to the Tri-Lakes (Lake Granby, Shadow Mountain Reservoir, and Grand Lake) via the Windy Gap diversion. Nutrient issues in the Tri-Lakes are arising as noted in the dissolved oxygen impairment listing for Shadow Mountain Reservoir. Reduction in assimilative capacity (dilution capacity) in the Fraser above Windy Gap will increase the relative quantity of wastewater treatment plant effluent and nutrients being carried in the Fraser. Therefore, water diversions carrying Fraser water through Windy Gap will likely have a higher nutrient content as a result and may cause or contribute to nutrient impacts in the Tri-Lakes.* **Response #765-48:** Additional water quality analysis, including temperature and nutrients, has been performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. FEIS Section 3.2 has been modified to reflect the 2012 Section 303(d) List (as available on CDPHE's website as Regulation 93). Information has been added to FEIS Section 3.2 regarding stream segments listed in CDPHE Regulation 93. ***Comment #765-47*** *(ID 5178)**:*** *In addition to the temperature impairments, dissolved oxygen impairments, and nutrient impairments that are likely to occur, selenium impairments may be exacerbated with possible impacts on endangered species. These impairments will likely result in the need for TMDL development and evaluation of pollutant source controls and may*

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	Basins. EPA is particularly concerned with the lack of mitigation for impacts to diverted streams. While the Draft EIS has concluded that impacts to stream resources associated with this proposed action range from none to minor impacts, it should be noted that the 'minor' impacts span over 90 miles of stream in the Williams Fork and Fraser River Basins. Mitigation should be proposed for aquatic life and habitat losses from diverted streams in these basins, as 'minor' secondary impacts aggregated over 90 miles of stream and adversely affecting an entire watershed, are not, when considered together, trivial impacts. Even 'minor' impacts to over 90 miles of stream can be considered significant, and as such, appropriate mitigation should be proposed to fully compensate for these yet-to-be-determined unavoidable impacts on a broad scale so the project does not cause or contribute to significant degradation of aquatic resources. In-kind mitigation measures may include improving flows to the upper Colorado, Williams Fork and Fraser Rivers by providing bypass flows through diversions on multiple tributary streams. Bypass flows maintain aquatic habitat connectivity within the stream, allowing for carbon export and recolonization of dewatered segments by upstream invertebrate colonists, and have been shown to mitigate some of the severe impacts associated with complete dewatering[9]. Because mitigation for habitat losses, including bypass flows on low order tributaries of the Fraser and Williams Fork basins, can have cumulative beneficial effects on downstream waters, they provide opportunities to offset the significance of the stream impacts (which are considered difficult to replace) and help minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River Basins. Additional opportunities for mitigation may include implementing options discussed in the Grand County Stream Management Plan, a 'virtual' Shoshone call or acquisition of other senior water rights for instream flows. Additional mitigation options to replace the permanently lost riffle and pool complexes upstream of Gross Reservoir may include restoration of dewatered riffle and pool complexes on the West Slope by establishing bypass flows on several tributaries of the Fraser and Williams Fork Rivers. While the Mitigation Rule speaks to the need to use the watershed context to the extent appropriate and practicable, this project represents a unique circumstance, where the location of impacts spans watershed boundaries due to the transbasin diversion of water. The Mitigation Rule was not intended to transfer impacts or mitigation from one watershed to another, but to provide mitigation where project impacts occur. Because of the hydrologic connectivity between basins established by the Moffat Tunnel, and the fact that the project is creating impacts on both the East and West slopes of the Continental Divide, enhancement and restoration opportunities should be explored in both basins. Because aquatic resources in the Fraser and Williams Fork River Basins are heavily impacted by water withdrawals, it is our best professional judgment that the best result for the aquatic ecosystem is to provide mitigation both in the South Boulder Creek Basin and the Fraser and Williams Fork Basins. [9] Pepin, D., N.L. Poff, and J. Baron. 2002. *Ecological Effects of Stream and River Water Development.* In: Rocky Mountain Futures (J. Baron, ed.), Island Press, 113-132. 21	*impact permitted dischargers in the watersheds. [See TABLE 1 DRAFT 2010 303(d) LISTINGS IN THE WATERSHEDS OF INTEREST in Source File.] A discussion of these impairments should be included in the EIS analysis, with the potential for the no action and action alternatives to contribute to these impairments disclosed. Any change to an upstream segment that influences assimilative capacity for an impaired downstream segment should be considered a significant impact. Hence, downstream impairments should be evaluated and discussed as well as those identified for the affected segments. Another area of concern is that the Draft EIS does not address potential organism transfers that may result from the no action and action alternatives. The document should discuss whether or not there is potential for nonnative and native species transfer or exacerbation of current conditions between watersheds. The document should also examine whether or not this has occurred as a result of past diversion activities.* **Response #765-47:** FEIS Section 3.2 has been modified regarding stream segments listed in CDPHE Regulation 93. Additional water quality analyses, including temperature and nutrients, have been performed for the Fraser River. Additional water quality analyses, including nutrient loadings, have been performed for the Three Lakes area. Additional temperature analysis has been performed for the Colorado River. In addition, river segments outside the study area that are listed on the Colorado Monitoring and Evaluation List or Section 303(d) List or that have TMDLs are discussed in FEIS Sections 4.6.2 and 5.2, including those segments that are listed for selenium. FEIS Sections 4.6.2 and 5.2 have been modified to include a discussion about potential organism transfers.

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	EPA has several concerns associated with the Additional Environmental Storage proposal at Gross Reservoir (Appendix M). The additional 5,000 AF will raise the dam an additional 6 feet, yet no information is provided in the Draft EIS as to the additional direct impacts associated with the increased reservoir size. Appendix M infers that this information is contained in the *Gross Reservoir Environmental Pool Operations Model* (AMEC, June 14, 2009), however EPA was unable to locate this information in the document. This information needs to be included in the Draft EIS as part of the proposed action in order to assess the Least Environmentally Practicable Alternative (LEDPA) pursuant to the Guidelines and to identify how much additional mitigation may be necessary. Also, the Draft EIS states, "the Additional Environmental Storage would generally be filled from April through September by exchanging water owned by the City of Boulder and Lafayette, rather than by water from the Moffat Collection System, which includes water diverted from the West Slope and water diverted under Denver Water's Gross Reservoir storage right" (Appendix M, p. M18). A 404 Permit Condition should be required to assure that no additional west slope diversions are used to fill the environmental pool, either via exchange or otherwise. The mitigation proposed for Colorado and Fraser River temperature is inappropriate, as it only addresses August maximum temperatures in relation to concurrent withdrawal. The Draft EIS and subsequent mitigation plan need to consider delayed temperature responses, where removal of spring snowmelt flows can potentially affect late summer temperatures. In systems dominated by a spring snowmelt peak, the peak flows are critical to maintaining temperatures throughout the year. With diversion of spring snowmelt peak flows, there is reduced loading, which reduces groundwater recharge and reduces coldwater saturation of wetlands, reservoirs, alluvium and other areas where flows become temporarily suspended. This in turn leads to an earlier increase in temperatures during the summer, as there are reduced volumes of cold water to buffer the warming from solar radiation. Also, due to potential reductions in groundwater recharge, there is likely a greater overall reduction in flow in later summer, which exacerbates temperature issues, as there is less overall mass to heat. In order to address the issues we raised in the 'Groundwater' section of this comment letter, EPA recommends monitoring over time of groundwater and surface water at defined locations. Groundwater monitoring should include water levels in wells and groundwater quality, especially given the potential impacts from sewage effluent. If impacts greater than those discussed in the Draft EIS are found, mitigation measures should be implemented. EPA would like to work with the Corps and the applicant to establish a monitoring program and to define potential mitigation measures. In summary, the following concerns regarding the mitigation plan (Appendix M) are provided for consideration regarding our determination that the proposed mitigation is not adequate to fully compensate for the amount and type of resource impacts associated with the proposed project: • The plan does not assess additional potential adverse impacts to West Slope streams from additional water withdrawals during the spring snowmelt period and other times of the year associated with the proposed action; • The plan relies on arbitrary criteria and inadequate methodologies to characterize 22	***Comment #765-46*** *(ID 5177)**:*** *Finally, in the water quality assessment, the Draft EIS applies the 85th percentile of data to compare to the water quality metals standards to determine support of aquatic life beneficial use. Additionally, a hardness value is selected for the waterbodies to calculate the hardness dependent standards when applicable. The document should include an explanation as to the selection of hardness values for calculation of the Table Value Standard (TVS) for each waterbody evaluated, an analysis of attainment against chronic standards using the 85th percentile data (or as required for the chronic standard), and an evaluation of attainment of acute standards using the maximum values and paired hardness values. The Draft EIS needs to make the comparison to standards clearer using the correct portion of the data set. Currently, the document does not provide a determination of attainment of acute standards. It is possible for a waterbody to be in attainment of chronic standards at the 85th percentile of the data and still exceed the acute standard more than the allowable once in three year frequency.* **Response #765-46:** FEIS Section 3.2 has been revised to clarify use of hardness values. Determination of existing water quality and comparing to water quality standards follows CDPHE guidelines as described in Regulation 31. Existing quality "means the 85th percentile of the data for total ammonia, nitrate, and the dissolved metals, the 50th percentile for total recoverable metals, the 15th percentile of such data for dissolved oxygen, the geometric mean of such data for E. coli, and the range between the 15th and 85th percentiles for pH. For temperature, for the purposes of implementing the chronic standard, 'existing quality' means the maximum weekly average temperature (MWAT) in a three year period."

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	potential impacts to aquatic life associated with the proposed action; • The mitigation plan may not sufficiently address or provide mitigation for adverse impacts to South Boulder Creek, Forsyth Gulch, Winiger Gulch Tributary, Winiger Gulch and an unnamed southern tributary; • Proposed mitigation on South Boulder Creek, alone, may not be sufficient to replace the riffle and pool complexes and associated functions and values that will be lost with direct impacts to 8,356 linear feet of streams tributary to the reservoir; • Impacts of a 5,000 AF Additional Environmental Storage pool, including additional loss of riffle and pool complexes from inundation, have not been characterized in the Mitigation Plan or the Draft EIS; • The mitigation plan does not sufficiently address the potential to violate the state water quality standard for temperature; • The mitigation plan needs to include a monitoring and adaptive management plan for impacts to water quality, groundwater, stream morphology and aquatic life so that if impacts greater than those discussed in the Draft EIS are found, mitigation measures can be implemented. ALTERNATIVES ANALYSIS Adequately defining the project purpose and need statement is critical for developing a broad range of alternatives in the Draft EIS, including subsequent identification of the least environmentally damaging practicable alternative (LEDPA) for compliance with the CWA Section 404(b)(1) Guidelines (Guidelines). EPA recommends the Draft EIS purpose and need statement should be more broadly defined: "to provide a portion of additional water supply for Denver Water's Combined Service Area future needs." For example, the NEPA document for the Denver Water Two Forks Water Supply Impoundment (Two Forks) project had a general purpose and need statement such that a broad range of alternatives was considered: "(t)he purpose of Denver's proposed projects is to provide a dependable future water supply for the metropolitan area." EPA has determined that the terms "basic" and "overall project purpose" are to be used interchangeably and are not intended to have distinct meaning. See Final Determination of the U.S. Environmental Protection Agency's Assistant Administrator For Water Pursuant to Section 404(c) of the Clean Water Act Concerning the Two Forks Water Supply Impoundments, Jefferson and Douglas Counties, Colorado, November 23, 1990, Page 2, n. 2. It appears that in the current project the Corps continues to define "overall project purpose" and "basic project purpose" to have separate meanings where the overall project purpose is more specific to the applicant's project thereby eliminating potential practicable alternatives. Regardless of the applicant's stated purpose and need in the Draft EIS, an independent determination by the Corps of the basic/overall project purpose is necessary. In late 2003 and early 2004, EPA reviewed the adequacy of the purpose and need statement for the project. EPA raised significant issues to the Corps during that period including that the applicant's four separate project needs could be considered separate project purposes (i.e., reliability, vulnerability, flexibility, and firm yield). Denver Water's desire to resolve all 23	***Comment #765-16*** *(ID 5176)**:*** *Stream Morphology EPA is concerned that the proposed action will affect numerous riffle and pool complexes which are special aquatic sites (40 CFR § 230.45), both through direct inundation from reservoir expansion and additional dewatering of streams in the Fraser and Williams Fork Basins. Expansion of Gross Reservoir will eliminate riffle and pool complexes in South Boulder Creek, Forsythe Gulch, Winiger Gulch and its tributary, and the unnamed southern tributary to Gross Reservoir. Previous research has shown that streams with cumulative diversion magnitude of 90% and greater have significant shifts in riffle/pool ratios, with increases in pool habitat[1] EPA is concerned that the proposed action, in combination with past, present and projected future withdrawals, may lead to cumulative diversion magnitudes greater than 90% and contribute to significant degradation of special aquatic sites in West Slope streams. According to the Guidelines, activities which affect riffle/pool ratios may reduce the aeration and filtration capabilities of these complexes, may reduce stream habitat diversity and may retard aquatic species repopulation of waters through sedimentation and the creation of unsuitable habitat (40 CFR § 230.45(b)). FOOTNOTE: [1] Albano, C.M. (2006) Structural and Functional Responses of Aquatic Macroinvertebrate Communities to Streamflow Diversion in Rocky Mountain Streams. Masters Thesis, Colorado State University, Fort Collins, Colorado.* **Response #765-16:** A discussion of the direct inundation of stream segments impacted by expansion of Gross Reservoir was added to the FEIS. Research completed by Albano, along with other relevant research regarding stream morphology and

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	four problems with one federal action may have precluded identification of available, less damaging practicable alternatives. EPA's recommendation has been and continues to be that a single, basic project purpose with alternatives addressing that single purpose be defined. Despite our comments detailing the independent nature of these project purposes, the Draft EIS identifies the same four project needs and has also specified the two underlying major issues of timeliness and location as additional considerations in defining and analyzing alternatives, all of which inappropriately limit the alternatives evaluated. If the Corps believes that the separate project purposes (needs) are not independent and are interconnected, then the future NEPA documentation should clearly defend this assertion and provide additional rationale supporting these needs including the potential alternatives that could address those needs and which are standard industry practices for water supply managers. EPA has concluded that it is an inappropriate interpretation of the Guidelines to integrate underlying project proponent needs into the project purpose and need statement or to use them as screening criteria, as this could result in elimination of alternatives that may otherwise be "practicable" considering the basic/overall project purpose of water supply. In addition, the Draft EIS incorrectly uses the applicant's purpose and need as one of the screening criteria (i.e., PN2: must supply water to Moffat Collection System) when the Section 404(b)(1) Guidelines direct alternatives to be evaluated, along with practicability, based on its ability to fulfill the basic project purpose (i.e., additional water supply for the service area) not the applicant's purpose and need for the project. 40 CFR § 230.10(a)(2). Denver Water's desire to resolve all four needs with one federal action may have precluded identification of available, less damaging practicable alternatives. Such alternatives may include the more sustainable water supply and storage alternatives presented in the Draft EIS with some modifications, implemented alone, and/or in combination with other water storage alternatives. Additional practicable alternatives may be developed during review of the Draft EIS and before the Final EIS for consideration of compliance with the Section (b)(1) Guidelines. Our review of the Draft EIS and Appendix K did not find information adequate for the evaluation of alternatives under the Clean Water Act 404 (b)(1) Guidelines. The majority of the problem is due to the inappropriate screening criteria that artificially constrained the range of alternatives that should have been considered. By using an overall purpose statement that includes the applicant's Purpose and Need statement and major issues, the screening criteria is narrowed and eliminates potentially less environmentally damaging and "practicable" alternatives from further examination in the Draft EIS. For example, the Draft EIS' use of timeliness (Screen Criteria PN3) resulted in the elimination of a multitude of alternatives from consideration (Appendix B). While we understand the importance of this issue to the metropolitan area, the Draft EIS also states that Denver Water will seek temporary measures to address shortages including use of the Strategic Water reserve (safety factor) and other near-term strategies until 2030 (Draft EIS page 1-16). A project proponent's decision to pursue a permit should not dictate time frames in which a project is considered because it artificially eliminates alternatives that may otherwise be available to a project proponent applying early in the process. Because these measures are available and 24	flow modifications was summarized in the FEIS. Channel morphology was evaluated to consider total anticipated flows with the proposed Project. Results are provided in FEIS Section 4.6.3. The FEIS in Sections 3.11, 4.6.11, and 5.11 was modified to incorporate updated information on channel morphology and riffle-pool complexes in the streams in the Project area. ***Comment #765-21*** *(ID 5175)**:*** *GROUNDWATER Conceptual Model EPA appreciates the consideration of and response to our previously submitted groundwater comments, and we agree that the conceptual hydrologic model for the Fraser watershed demonstrates that there is no change in recharge above the diversions and in the northwest part of the watershed. However, below the diversions, there may be impacts to groundwater. Specifically, removal of water from the Fraser River and its tributaries may impact groundwater levels, public and private wells, and wetlands, and those impacts should be evaluated. The conceptual model presented in the Draft EIS suggests that in the Fraser River and along the narrow alluvial channels of the tributaries to the Fraser River there is no interaction between the streams/river and alluvium or between alluvium and bedrock, and that the ground water is always recharging surface water, and thus impacts to groundwater will be minimal. However, the model does not accurately represent the interplay between groundwater and surface water in a watershed because it does not recognize the fact that there will be areas where surface water is recharging groundwater, at least during portions of the year. Therefore the removal of surface water may impact ground water levels. The Apodaca and Bails paper[2] cited in the Draft EIS Groundwater Section 4.2 illustrates ground water recharging the tributaries. However, the study provides only a very*

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	capable of being done, they should be considered when examining alternatives. Such timeliness factors should not render an alternative impracticable and delays are generally not an appropriate basis for screening alternatives. In addition, the logistics screening criteria LG3 eliminated alternatives that lie within areas known to be integral to the development plans of other entities, including other rationale relating to land status. Alternatives that are "available and capable of being done" may be considered practicable despite zoning designations or platting processes. Given that variances can be sought to change zoning and that land development status is usually not fixed until construction permits are sought, the logistics criterion used in the Draft EIS also likely eliminated alternatives that may still be practicable under the Guidelines. Finally, the 15,000 AF screening criterion for any new surface impoundment (Screen Criteria LP2) and storage requirement in one storage facility appears to have eliminated multiple storage sites that may be practicable and less damaging when used in combination with the other alternatives. **Conservation** EPA appreciates Denver Water's commitment to conservation as a means to achieve demand reduction, and we recommend inclusion of additional information regarding this important commitment For example, we suggest identifying the specifics of the conservation efforts (including the obligations defined through the fixed/special contracts and the short-term leases), quantification of the effectiveness of existing programs, and identification of necessary conservation program changes if there is a gap between current effectiveness and the anticipated 16,000 AF per year demand reduction. Disclosure of such information will help inform the public of the actions that will be necessary to meet the 16,000 AF per year demand reduction. We understand from Denver Water's website that such aggressive measures are planned for discussion in the update to the Integrated Resource Plan due for release in 2010. EPA encourages Denver Water to provide the most up-to-date conservation information available from the 2010 report, as well as all other revised information applicable to the Draft EIS. **AIR QUALITY** The Moffat Collection System Project's Gross Reservoir is 18.5 miles from Rocky Mountain National Park and 45 miles from Eagles Nest Wilderness Area, which are both Federal Class I areas. Under the Clean Air Act, Federal Class I areas require special protection of air quality and air quality related values (AQRV's), such as visibility. The project is 11.5 miles from Indian Peaks Wilderness Area a sensitive Class II area. Gross Reservoir is located within the Denver Area ozone nonattainment area and CO and PM10 maintenance areas. Emission estimates presented in the Draft EIS for the project are primarily construction related. The estimates given differ under the various Alternatives, however, in many cases, CO, PM10 and NOx emissions are over 100 tons per year. Statements given in the Draft EIS indicate that the air quality impacts would be minor (pages 4-350 through 4-356) are not supported by any quantitative analysis. These high emission rates coupled with the proximity of Class I areas and 25	*generalized map with 100-foot contour lines, very few data points, and was completed in the fall timeframe when it is expected that groundwater will recharge surface water. There will be locations along the tributaries and the main stem where surface water is recharging groundwater, particularly during high flow months. The Grand Environmental Services Report[3] shows direct connection between alluvial groundwater/wetlands and the Fraser River. FOOTNOTES: [2] Apodaca, L.E. and J.B. Bails. 1999. Fraser River Watershed, Colorado - Assessment of Available Water Quantity and Water-Quality Data Through Water Year 1997, USGS WRIR 98-4255. [3] Grand Environmental Services, 2008. Final Baseline Hydrology Report for Compensatory Wetland Mitigation Plan, Town of Winter Park Shops Expansion Project, USACE SPK-2008•752.* **Response #765-21:** Project diversions are expected to have negligible to minor direct impacts on groundwater in the Fraser River watershed. During average years, the seasonal drop in peak stream levels would likely cause only minor reductions in groundwater levels immediately adjacent to the streams during the extended diversion period. In wet years, the effect of the Moffat Project on groundwater levels and recharge rates is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Overall, there would not be a substantial change in groundwater levels, recharge rates or groundwater flows into the streams. The DEIS clearly describes that groundwater is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could

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	located within the Denver nonattainment/maintenance areas indicate that a near field air impact and a screening level visibility analysis for the project should be included in the EIS. Sections 3.11.4 and 4.11.3.2 present a General Conformity Analysis for the project. Since the project is in the Denver ozone nonattainment area and Denver carbon monoxide and particulate matter less than 10 microns (PM_{10}) maintenance areas and that the de-minimus thresholds may be exceeded by the project, we concur that a General Conformity analysis and determination should be conducted for the project, and the analysis must include direct and indirect emissions. Section 4.11.8, page 4-358 indicates that CDPHE would determine General Conformity with the State Implementation Plan (SIP). The General Conformity regulation 40 CFR § 93.150(b), states that the "Federal agency must make a determination that a Federal action conforms to the applicable implementation plan in accordance with the requirements of this subpart before the action is taken." The CDPHE is required to review and advise on the Federal agency conformity determination. The EIS should present both the General Conformity Analysis and Determination for the project (i.e., how the proposed action would comply with the SIP and State regulations). **AQUATIC RESOURCES OF NATIONAL IMPORTANCE** Colorado River EPA has determined that the upper Colorado River is an aquatic resource of national importance (ARNI), consistent with EPA's 404(3)(b) letter to the Corps regarding Windy Gap Firming Project, dated December 24, 2008. The upper Colorado River provides a valuable habitat for many aquatic organisms, including four federally listed fish species. In addition, the upper Colorado River is a valuable commercial and recreational resource, providing economic benefits to Colorado's western slope communities. Segments of the Colorado River downstream of the confluence with the Fraser River are moderate to steep gradient and are characterized by riffle and pool complexes, special aquatic sites under the Guidelines (40 CFR § 230.45). Because wetlands comprise approximately 1-2% of the arid landscape in Colorado and over the last two centuries, Colorado has lost an estimated 50 percent of its wetlands, the riparian wetland complexes, which are also special aquatic sites (40 CFR § 230.41), associated with the upper Colorado River provide a rare and unique habitat. Fraser River EPA has determined that the Fraser River is an aquatic resource of national importance (ARNI). EPA is concerned that flow diversion impacts to the tributaries of the Fraser River in combination with flow diversion on the Fraser itself may result in unacceptable adverse impacts to this resource. The Fraser River provides a valuable habitat for many aquatic organisms and offers plenty of opportunity for small to medium size stream fishing. In addition, the Fraser River is a valuable commercial and recreational resource, providing economic benefits to Grand County communities and resorts. Segments of the Fraser River downstream of the Moffat Collection System diversion structure are moderate to steep gradient and are characterized by riffle and pool complexes, special aquatic sites under the Guidelines (40 CFR § 230.45). Because wetlands comprise approximately 1-2% of the arid landscape in Colorado and over the last two centuries, Colorado has lost an estimated 50 percent of its wetlands, the riparian wetland 26	change. For example, in DEIS Section 4.2 states: "In areas where groundwater discharges into a stream or river under Current Conditions (2006), water level declines in the river would increase hydraulic gradients between the stream and the adjacent groundwater, which would increase groundwater flow toward the stream. On the other hand, in reaches where rivers lose water to groundwater under Current Conditions (2006), the rate of seepage from the streambed would likely decrease when stream flows decrease. However, the rate of decline in streambed seepage would be much smaller than the amount of stream flow reduction in all such cases because the rate of seepage is controlled largely by the physical properties of the stream bed." The DEIS also provides extensive descriptions of stream flow changes that have been evaluated for the potentially affected stream segments using the PACSM (described in DEIS Section 3.1). Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Project diversions are expected to have negligible to minor direct impacts on groundwater in the Fraser River watershed. During average years, the seasonal drop in peak stream levels would likely cause only minor reductions in groundwater levels immediately adjacent to the streams during the extended diversion period. In wet years, the effect of the Moffat Project on groundwater levels and recharge rates is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Overall, there would not be a substantial change in groundwater

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	complexes, which are also special aquatic sites (40 CFR § 230.41), associated with the Fraser River and its tributaries provide a rare and unique habitat. The Fraser River has a drainage area of 297 mi^2 and ranges from 7,900 ft to above 13,000ft in elevation. The Fraser River is one of the major headwater tributaries to the Colorado River, located on the western slope of the Continental Divide in the Arapahoe National Forest. The Fraser River drains north from the vicinity of Berthoud pass for approximately 40 miles, carrying snowmelt from the Continental Divide to the Colorado River. The Moffat Collection System diverts water from a set of 31 municipal diversion structures on the Fraser River and its tributaries, and moves the water via nearly 28 miles of canals, pipes and siphons to the Moffat Tunnel, which carries the water under the Continental Divide to South Boulder Creek. After the Moffat Collection System began diverting flows (1936-2004), average annual stream flow for the Fraser River at Winter Park gage has decreased by 60% compared with flows prior to the existing Moffat Collection System (1911-1935). The proposed action will utilize current infrastructure to divert additional flows from the Fraser River and its tributaries through the Moffat Tunnel. All municipal diversions in the Fraser Basin are located approximately 9,500 ft above sea level. Management of these diversion structures is variable from year to year depending on weather, water demands and operational constraints. The collection system operates year-round, diverting water that is physically and legally available at each diversion point subject to minimum bypass flows and calls from downstream senior water rights. Streams that do not have minimum bypass requirements (and even those with downstream senior rights) are fully diverted at times during the year and no water is bypassed from those diversion structures. This leads to low-flow conditions that make riffle habitats absent for up to 2 km downstream. Bypass flows are maintained on ten structures, including the Fraser River, following an agreement between Denver Water and the USFS. At four of these diversions, Denver water is allowed to reduce the USFS minimum bypass flows when its customers are on restrictions. Current instream flow requirements include these bypass flows, as well as numerous instream water rights held by the Colorado Water Conservation Board (CWCB), which are junior to Denver Water's rights. Because they are junior, Denver Water is not obligated to satisfy the CWCB rights. The Fraser River and its tributaries experience widely variable seasonal fluctuations in flows, with the largest flows resulting from snowmelt. Approximately 75% of the total annual flow occurs during the spring and early summer runoff period of May through mid-July. Peak flows occur for 1-2 weeks in late spring or early summer as warmer air temperatures initiate snowmelt and groundwater aquifers become saturated. During the remainder of the year, groundwater-induced baseflow conditions dominate the hydrograph[9]. Annual precipitation in the basin ranges from approximately 20 in/yr in the lower elevation valleys to 36 in/yr on Berthoud Pass. Riparian vegetation includes subalpine Engelmann spruce (*Picea engelmannii*), subalpine fir (*Abies lasiocarpa*), lodgepole pine (*Pinus contorta*), willows (*Salix* and *Populus* species) and various herbaceous species[8]. The Fraser River downstream of the Moffat diversion is intensively used by the public for recreational activities and represents a valuable commercial and recreational resource. There are numerous access points for fishing, both in the montane and valley sections of the river, and the 27	levels, recharge rates or groundwater flows into the streams. A detailed discussion on the interactions between streams and groundwater in the Fraser Valley is provided below. Groundwater/Streams Interactions The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water Diversion structures west of the Continental Divide. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River Basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water Diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent USGS Technical Report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in

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	summertime economy of many Grand County resorts is linked to river-related activities such as fishing. The river is easily accessible from the Fraser River Trail, a highly utilized multi-use path along the Fraser River through Winter Park and Fraser. There river is used for boating, with a 9 mile stretch of Class III+ to IV rapids through Fraser Canyon. Boating is limited by the diversions upstream, and the Fraser Canyon is only accessible to recreational boaters during several weeks of high runoff flows in the spring. 28	the Williams Fork watershed where there are other Denver Water Diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because these areas do not lie downstream of any Denver Water Diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Moffat Project. Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to the Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt into the ground surface would not be altered by the Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the Moffat Project only has the potential to slightly reduce

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		groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs. A USGS Technical Report (Apodaca and Bails 1999) for the Fraser River Basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River Basin downstream of the Denver Water Diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving GWdb. The groundwater level contours also indicate that recharge occurs in higher elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed.

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		Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. DEIS Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River Basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cfs) more than 80% of the

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		time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels

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		immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Another commenter asserts that: The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser River Basin shows otherwise. For example, the DEIS Fraser River Basin water budget claims that GWdb amounts to approximately 42,000 AF/yr compared to 64,500 AF of surface flow out of the watershed annually. Thus, GWdb is greater than 10% of the total water budget and about two-thirds of the total surface flow out of the basin. As described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic systems in each of the affected watersheds during these times. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. In this annual hydrologic budget, the inputs and outputs each total approximately 400,600 AF/yr for an average year. In this table, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999).

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		The water budget table (DEIS Table 3.2-1) does not show what the comment suggests. In stating the GWdb amounts to approximately 42,000 AF/yr, the commenter confuses GWua, with GWdb. In this hydrologic budget table, GWua represents flow out of the basin below the ground surface whereas GWdb is flow out of the ground surface (e.g., to streams). The comment adds 13,700 AF/yr of GWua to the amount of GWdb as stream base flow, 28,300 AF/yr, to arrive at the value of 42,000 AF/yr for GWdb. Rather, this table actually indicates that average annual GWdb to the stream base flow is about 28,300 AF/yr, or about 7% of the total water budget. The Moffat Project would not measurably affect GWdb that supports base flow because the proposed diversions would not substantially reduce groundwater levels or recharge rates for the reasons described above. The comment also reflects a misunderstanding of the purpose of providing the simple water budget table and graphic in the DEIS. This information was intended to simply illustrate the hydrologic processes in the watersheds. They were included in the DEIS to help the interested public reader to generally understand the major hydrologic components and how they interrelate. To avoid the type of confusion expressed in this comment and the possibility for others to over-interpret the meaning of the hydrologic budget values, the water budget table (DEIS Table 3.2-1) and graphic are not included in the FEIS. Although it is conceptually reasonable to expect that if groundwater levels were to decline by more than the range of natural temporal fluctuations because of the Project, the productivity of some wells could be affected. However, the magnitude of this potential effect would depend on the amount of static (non-pumping) groundwater level decline at each specific

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		well location compared to the saturated thickness of the aquifer penetrated by the well and the distance between that well and the affected stream segment. Information provided in the DEIS shows that the Project would not cause a reduction in groundwater levels within any of the West Slope basins, except there would possibly be minor temporary declines in areas immediately next to some of the streams during the high-runoff period. Thus, compiling and presenting the information for all the existing wells is not necessary or justified for an EIS-level of analysis. Moreover even if the well information were complete and available from public sources, those data would not provide a basis for the impacts analysis suggested in the comment. Rather, impacts to well productivity could only be evaluated based on the magnitude of changes in stream flows and stream levels, and the distance between the well and the stream. The groundwater flow system is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could change. The Project would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be

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		less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water Diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that detailed study Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. Groundwater levels immediately adjacent to this stream segment would drop less than 8 inches because groundwater flows toward and into the stream due to groundwater recharge in the surrounding uplands. This recharge is derived primarily from infiltration of snowmelt in the uplands above the stream and would not be affected in any way by the Project. Based on comments from the EPA, the Corps installed groundwater wells in the fall of 2010 to provide measurements of groundwater level elevations and adjacent stream water level elevations in the Fraser River watershed. These data demonstrate the groundwater-surface water relationships described in the DEIS exist downstream of Denver Water Diversion points. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other RFFAs. Additional groundwater data collected in the fall of 2010 was provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water Diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater, stream flow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8.

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		As described in the response to Comment ID 5174, the proposed additional diversions would cause only minor changes in stream levels downstream the diversion points. These changes would only occur during the months when stream levels and groundwater levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures. Grand Environmental Services Report Data reported by Grand Environmental Services (2009) for the Winter Park Shops Expansion Project have been used to further evaluate the interactions between groundwater and the Fraser River. Based only on the data in that report, it was impossible to determine the groundwater level elevations because there were no measurements of ground surface elevations given for the monitor wells or surface water points. Elevation of the groundwater level at each measurement point, rather than the depth to water below ground surface, defines the hydraulic gradients. Hydraulic gradients between the groundwater and the stream determine groundwater flow directions, and whether groundwater would flow into the stream, or vice versa. Thus it was necessary to also measure the elevation of the ground surface at the monitor wells in order to determine the relationships between groundwater flow and the stream. In October 2010, the monitor wells and adjacent stream levels were accurately surveyed to provide the data needed for calculating groundwater level elevations and hydraulic gradients. Figure 2 is a map of the Winter Park Shops Expansion Project area showing the wells and stream survey point locations. This map also shows the groundwater level elevations corresponding to the water levels measured by Grand Environmental Services on June 29, 2009. On Figure 2, the groundwater level

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		elevations are depicted as water table contours above the sea level datum (ft, msl). Hydraulic gradients, and hence groundwater flow directions, are from higher elevations to lower elevations, perpendicular to the water table contours. Figure 3.4-3 provides hydrographs of the groundwater level elevations calculated from the 2010 survey data and the water level measurements during the monitoring period, May 22- August 3, 2009, by Grand Environmental Services (2009). Figure 4 is a hydrologic cross section extending along the groundwater flow direction toward the river, which shows the hydraulic relationships between groundwater and the Fraser River in late June 2009. The data from the Winter Park Shops Expansion Project area clearly demonstrate groundwater flows toward and into the Fraser River, even during the high-flow season. Data on Figure 2 show the hydraulic gradients were toward the Fraser River in late June 2009 when stream flows were high due to snowmelt runoff. In the fall of 2010, the same general pattern of groundwater flow toward the streams was also found at the three other detailed groundwater study areas downstream of Denver Water stream diversion structures in the Fraser Valley. These new groundwater data are provided and further described in the FEIS. All the new data are consistent with and support the conceptual hydrologic model of groundwater-stream interactions described in the DEIS. The well hydrographs on Figure 3 show that groundwater levels are generally slightly higher during the snowmelt period, which is also true for the river levels during the same period. As described in the DEIS, both the stream levels and the groundwater levels are higher during this period because seasonal snowmelt increases runoff,

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		stream flow, and groundwater recharge in uplands during this period. However, the stream level changes do not affect groundwater levels except immediately along the stream margin. Outside that relatively narrow zone adjacent to the stream, groundwater levels remain above the river level and the hydraulic gradients remain toward the river even during the high flow period. Recall that Figure 2 shows the overall pattern of groundwater flow is toward the river during the latter part of the snowmelt period in June. Thus stream flow changes cannot substantially affect groundwater levels. Therefore, additional removal of water from the Fraser River and its tributaries planned for this Moffat Project would not substantially effect groundwater levels, public and private wells, or wetlands supported by GWdb. Groundwater level changes along the stream margins would be equal to or less than the stream level changes attributable to this Project. Overall impacts to groundwater in the valley would be negligible. ***Comment #765-20*** *(ID 5174)**:*** *Impact on Water Levels in Wells The potential for impacts to wells (public water supplies and domestic wells) has not been addressed in the Draft EIS. EPA recommends that information regarding well locations, screened interval, depth, geology, and water levels for private and public wells be disclosed, and an impacts analysis based on this information be performed. For example, an estimate of potential future impacts could be derived from an analysis of groundwater levels before diversions and over time until present. Any analysis performed should also include an evaluation of groundwater quality. On page 4-207, the Draft EIS states: "sewage effluent may impact ground water well users," but "natural attenuation" will address this potential impact. Because the proposed project will result in less flow to dilute contaminants from*

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		sewage effluent and septic tanks in surface water and groundwater, such a conclusion should be quantitatively substantiated. It is recommended that the proponent include ongoing monitoring of water levels and water quality in select monitoring wells and appropriate mitigation if well users or wetlands are impacted by the diversion. **Response #765-20:** Although it is conceptually reasonable to expect that if groundwater levels were to decline by more than the range of natural temporal fluctuations because of the Project, the productivity of some wells could be affected. However, the magnitude of this potential effect would depend on the amount of static (non-pumping) groundwater level decline at each specific well location compared to the saturated thickness of the aquifer penetrated by the well and the distance between that well and the affected stream segment. Information provided in the DEIS shows that the Project would not cause a reduction in groundwater levels within any of the West Slope basins, except there would possibly be minor temporary declines in areas immediately next to some of the streams during the high-runoff period. Thus compiling and presenting the information for all the existing wells is not necessary or justified for an EIS-level of analysis. Moreover even if the well information were complete and available from public sources, those data would not provide a basis for the impacts analysis suggested in the comment. Rather, impacts to well productivity could only be evaluated based on the magnitude of changes in stream flows and stream levels, and the distance between the well and the stream. The groundwater flow system is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could change. The Project

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		would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that detailed study Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. Groundwater levels immediately adjacent to this stream segment would drop less than 8 inches because groundwater flows toward and into the stream due to groundwater recharge in the surrounding uplands. This recharge is derived primarily from infiltration of snowmelt in the uplands above the stream and would not be affected in any way by the Project. Specific data and information from the DEIS and the rationale for these conclusions are further described below.

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		Groundwater/Surface Water Interactions The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water diversion structures west of the Continental Divide. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River Basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water Diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent USGS Technical Report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the Williams Fork watershed where there are other Denver Water Diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because

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		these areas do not lie downstream of any Denver Water Diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Moffat Project. Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to the Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt into the ground surface would not be altered by the Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the Moffat Project only has the potential to slightly reduce groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes

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		stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs. A USGS Technical Report (Apodaca and Bails 1999) for the Fraser River Basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River Basin downstream of the Denver Water Diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving GWdb. The groundwater level contours also indicate that recharge occurs in higher elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a

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		very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. DEIS Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River Basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cfs) more than 80% of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time.

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		Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no

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		additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Another commenter asserts that: The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser River Basin shows otherwise. For example, the DEIS Fraser River Basin water budget claims that GWdb amounts to approximately 42,000 AF/yr compared to 64,500 AF of surface flow out of the watershed annually. Thus, GWdb is greater than 10% of the total water budget and about two-thirds of the total surface flow out of the basin. As described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic systems in each of the affected watersheds during these times. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. In this annual hydrologic budget, the inputs and outputs each total approximately 400,600 AF/yr for an average year. In this table, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999). The water budget table (DEIS Table 3.2-1) does not show what the comment suggests. In stating the GWdb amounts to approximately 42,000 AF/yr, the commenter confuses GWua, with GWdb. In this hydrologic budget table, GWua represents flow out of the basin below the ground surface whereas

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		GWdb is flow out of the ground surface (e.g., to streams). The comment adds 13,700 AF/yr of GWua to the amount of GWdb as stream base flow, 28,300 AF/yr, to arrive at the value of 42,000 AF/yr for GWdb. Rather, this table actually indicates that average annual GWdb to the stream base flow is about 28,300 AF/yr, or about 7% of the total water budget. The Moffat Project would not measurably affect GWdb that supports base flow because the proposed diversions would not substantially reduce groundwater levels or recharge rates for the reasons described above. The comment also reflects a misunderstanding of the purpose of providing the simple water budget table and graphic in the DEIS. This information was intended to simply illustrate the hydrologic processes in the watersheds. They were included in the DEIS to help the interested public reader to generally understand the major hydrologic components and how they interrelate. To avoid the type of confusion expressed in this comment and the possibility for others to over-interpret the meaning of the hydrologic budget values, the water budget table (DEIS Table 3.2-1) and graphic are not included in the FEIS. Although it is conceptually reasonable to expect that if groundwater levels were to decline by more than the range of natural temporal fluctuations because of the Project, the productivity of some wells could be affected. However, the magnitude of this potential effect would depend on the amount of static (non-pumping) groundwater level decline at each specific well location compared to the saturated thickness of the aquifer penetrated by the well and the distance between that well and the affected stream segment. Information provided in the DEIS shows that the Project would not cause a reduction in groundwater levels within any of the West Slope basins, except

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		there would possibly be minor temporary declines in areas immediately next to some of the streams during the high-runoff period. Thus, compiling and presenting the information for all the existing wells is not necessary or justified for an EIS-level of analysis. Moreover even if the well information were complete and available from public sources, those data would not provide a basis for the impacts analysis suggested in the comment. Rather, impacts to well productivity could only be evaluated based on the magnitude of changes in stream flows and stream levels, and the distance between the well and the stream. The groundwater flow system is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could change. The Project would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water Diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that

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		detailed study Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. Groundwater levels immediately adjacent to this stream segment would drop less than 8 inches because groundwater flows toward and into the stream due to groundwater recharge in the surrounding uplands. This recharge is derived primarily from infiltration of snowmelt in the uplands above the stream and would not be affected in any way by the Project. Based on comments from the EPA, the Corps installed groundwater wells in the fall of 2010 to provide measurements of groundwater level elevations and adjacent stream water level elevations in the Fraser River watershed. These data demonstrate the groundwater-surface water relationships described in the DEIS exist downstream of Denver Water Diversion points. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other RFFAs. Additional groundwater data collected in the fall of 2010 was provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water Diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater, stream flow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8. ***Comment #765-32*** *(ID 5173)**:*** *AQUATIC BIOLOGICAL RESOURCES Direct and Indirect Impacts Characterization of Impact Intensity:*

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		The Draft EIS needs to clearly elaborate on criteria used to categorize impacts and apply these criteria consistently throughout the document. Based on EPA's review, the Draft EIS does not contain a scientifically based assessment of impact thresholds to define the categories of impact intensity, as Appendix K indicates has been done. The inconsistencies within the document are misleading and confusing for reviewers and further lead to the potential for project impacts to not be objectively disclosed. The Draft EIS states that "impacts on benthic invertebrate community parameters were evaluated based on the available hydrology, geomorphology, and water quality information" (ARTR page 16). No additional information was provided as to how the hydrology, geomorphology and water quality data were used to determine impacts to aquatic invertebrates, or how the thresholds for impact categories were defined. Also, the document only presents data on current conditions (2006) of invertebrate density and number of taxa, and fails to elucidate changes in these metrics under existing conditions (2016) or with future expected and proposed actions. Only a qualitative discussion is presented in Chapter 4 of the Draft EIS to support the intensity of impact for each waterbody and alternative. For aquatic invertebrates, as well as all other aquatic resources, EPA requests that the methodology and results of any analyses on changes in aquatic resources be provided in the document along with clearly defined 'thresholds' for each impact category. The disclosed level of project impacts varies between sections of the Draft EIS, which indicates that a consistent interpretation of impact intensity was not applied throughout the Draft EIS. For example, the Draft EIS states that, "Moffat Project alternatives would have none to negligible impacts to fish, benthic invertebrates, and their habitats for most stream segments. Exceptions include minor adverse impacts to fish and invertebrates in South Boulder Creek upstream of Gross Reservoir, and the North

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		Fork South Platte River which could experience increased flows and increased concentrations of copper" (Draft EIS pages 5-46, 5-47, emphasis added). This is contrary to the information presented in Draft EIS Section 4.9, which states that there would be minor adverse impacts associated with the project for all stream segments except St. Louis Creek, Vasquez Creek, the Englewood diversions, and several segments of the Fraser River. For another example, the Draft EIS states that, "Cumulative impacts to aquatic resources would be negligible, except for minor adverse impacts to fish and invertebrates in the North Fork Ranch Creek (tributary of the Fraser River), McQueary, Jones, Bobtail, and Steelman creeks (tributaries of the Williams Fork River)" (Draft EIS page 5-47, emphasis added). It then states, "Most streams would experience minor effects to fish and aquatic resources. Exceptions to this include some of the upper tributaries of both the Williams Fork and the Fraser rivers where moderate impacts to fish could be expected due to lower flows" (Draft EIS page 5-56, emphasis added). **Response #765-32:** FEIS Sections 4.6.11 and 5.11 have been revised to include descriptions of impact intensity that are applied consistently throughout the document. ***Comment #765-31*** *(ID 5172)**:*** *Characterizing impacts ill the context of total diversion magnitude: Current baseline conditions of the system have not been appropriately characterized in the DEIS, as they do not consider how past diversions and flow management have affected water quality and aquatic life to date. Also, non-linear changes may occur at higher magnitudes of total diversion, where an incremental increase in diversion magnitude may not lead to incremental changes in the aquatic community, but instead may lead to disproportionate adverse changes. EPA*

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		requests that the Corps include expanded analyses to include information on deviation from natural, or virgin, flows in order to characterize how the current magnitude of flow diversion in the Moffat Collection System affects aquatic life and water quality and any potential non-linear changes in the aquatic ecosystem. **Response #765-31:** Please see the response to Comment ID 5163. ***Comment #765-15*** *(ID 5171)**:*** *Currently, the Draft EIS presents information on the change in flows between current conditions and full use existing conditions, and the change in flows between full use existing conditions and the no action and action alternatives. The disclosure of the current magnitude of flow diversion, compared with natural flows is not included in the Draft EIS (e.g., what percent of monthly virgin flows are currently diverted), but it should be included as it is relevant to understanding the current baseline conditions and potential impacts of the proposed action on aquatic communities. As Denver Water Board diversions have existed on West Slope streams for decades and have modified the aquatic ecosystem significantly, information on natural flows is necessary to characterize the current baseline status of aquatic organisms and their habitat under the human-modified current and existing conditions. EPA requests that the monthly natural flows and the difference between the natural flows and current/existing conditions (e.g., percentage of monthly natural flows diverted under current and existing conditions) be presented for each diversion site or PACSM modeling node so that a scientifically based baseline is disclosed.* **Response #765-15:** Please see the response to Comment ID 5162.

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		Comment #765-30 *(ID 5170)**:*** *The baseline aquatic life and water quality conditions have not been appropriately characterized. For example, in Chapter 3, the document uses research to indicate that the effects of flow diversion on aquatic organisms in the Fraser River Basin and analogous systems can have varying effects and that the communities in these streams can be very tolerant to flow removal (Draft EIS page 3-223). What the discussion fails to capture is that the referenced studies showed statistically significant differences between diverted streams and their free-flowing reference sites, indicating that these aquatic communities are currently impacted by flow diversions. Additionally, Chapter 3 presents data collected below diversions prior to 2006, but does not provide any analysis or discussion as to how these data may be indicative of degraded conditions. For example, the DEIS presents data on native fish, which were present several of the Fraser tributaries in 1993 sampling events, but not in any subsequent events, yet provides no discussion as to why that may be the case. Also, the Draft EIS states that many of the same benthic invertebrate groups present in 2007 were also present in 1985 (page 3-221), but provides no discussion as to whether the invertebrate taxa that are no longer present are indicative of altered habitat conditions. EPA requests that future NEPA documentation provide discussion and analysis to illustrate how past diversions have affected aquatic resources to date. When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, it is likely that the degradation to the aquatic ecosystem will reach a level that is likely to be significant (per 40 CFR § 230.24).* **Response #765-30:** Please see the response to Comment ID 5163.

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		Comment #765-29 *(ID 5169)**:*** *The Guidelines highlight the need to assess 'Normal water fluctuations in a natural aquatic system' as part of the factual evaluations to determine whether a project causes or contributes to significant degradation of waters of the U.S. (40 CFR § 230.24). As stated in the Guidelines, altering the normal water-level fluctuation pattern of an area, resulting in prolonged periods of inundation, exaggerated extremes of high and low water, or a static non-fluctuating water level, can alter or destroy communities and populations of aquatic animals and vegetation, induce populations of nuisance organisms, modify habitat, reduce food supplies, restrict movement of aquatic fauna, destroy spawning areas, and change adjacent, upstream, and downstream areas. In the Draft EIS, information on natural flows, and the current deviation from natural, is not presented and thus, the relevant flow data to characterize the current/existing baselines and quantify impacts is absent.* **Response #765-29:** FEIS Section 4.6.1 has been revised to include information concerning the IHA procedure, which is used to evaluate changes in flow patterns. This information has been incorporated into the aquatic biological resources discussion and analysis in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #765-28*** *(ID 5168)**:*** *Characterizing impacts in the context of total diversion magnitude will provide relevant information to assess potential threshold, or non-linear, impacts. The current ecological research suggests that the invertebrate response, and changes in habitat and water quality, can be variable depending on the magnitude of diversion[4]. For example, Rader and Belish[5] found that where flow was diverted 25% of natural, there was an increase in invertebrate*

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		density, but where flows were diverted more than 90%, there were significant declines in density and species richness. Cowx et al.[6] found that with a 60% flow reduction, there was an increase in temperature and decreases in wetted width and invertebrate density. Based upon numerous studies that show a suite of environmental and community responses following varying magnitudes of flow depletion, it is likely that at levels of flow reduction greater than 50%, the ecological response to additional incremental water withdrawal may not be linear. In other words, at diversions of this magnitude and greater, the incremental increase in diversion magnitude may not lead to incremental changes in the aquatic community, but instead may lead to disproportionate adverse changes. For example, an additional diversion of 10% between existing conditions and the proposed project may have a 'minor' impact, based upon the analyses currently employed in the Draft EIS. However, if the system is already diverted by 85%, that additional 10% diversion may lead to significant changes in the aquatic resources in the stream - and an impact that may no longer be considered 'minor.' FOOTNOTES: [4] Dewson, Z.S., A.B. W. James, and R.G. Death. 2007. A review of the consequences of decreased flow for instream habitat and macroinvertebrates. Journal of the North American Benthologicol Society, 26: 401-415. [5] Rader, R.B. and T.A. Belish. 1999. Influence of mild to severe flow alterations on invertebrates in three mountain streams, Regulated Rivers: Research and Management, 15: 686-363. [6] COWX, I.G" W,O. Young, and J.M. Hellawell. 1984, The influence of drought on the fish and invertebrate populations of an upland stream in Wales (UK). Freshwater Biology 14(2): 165-178. **Response #765-28:** Please see the response to Comment ID 5163.

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		Comment #765-27 *(ID 5167)**:*** *Based upon the available literature, a coarse framework could be developed to characterize the risk for potential non-linear responses. As the scientific literature points to potential disproportionate impacts beyond certain magnitudes of diversion, information on the current deviation from natural conditions is necessary to potentially characterize potential threshold impacts associated with the project alternatives. EPA has already conducted a cursory literature review on the ecological changes associated with varying magnitudes of flow diversion and would like to work with the Corps to develop a framework for assessing potential non-linear responses. For example, if under existing conditions, the flow reduction is 25% of virgin flows, and the proposed action increases the diversion to 35%, the project impact may be negligible; however if under existing conditions, the flow reduction is 85%, and the proposed action increases the diversion to >90% flow reduction, the project impact may be major.* **Response #765-27:** The Corps is not aware of a known scientific threshold or “tipping point” at which negative impacts occur to aquatic species nor is the Corps aware of any model or technique available that conducts “threshold” analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to

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		assess the magnitude of impact. For example, in fully diverted tributaries that do not contain fish and few macroinvertebrates, it is likely that the resource, immediately downstream of the diversion, is past the tipping point. In other stream segments, site-specific information was assessed to determine if the Project would create a tipping point effect. FEIS Sections 3.11, 4.6.11, and 5.11 have been revised to identify existing conditions in streams that are clearly past the tipping point based on professional judgment. ***Comment #765-26*** *(ID 5166)**:*** *Appropriate methodologies for determining impacts of flow diversion on West Slope streams: EPA has concerns about the methodologies provided in the Draft EIS to assess impacts to aquatic resources. The analysis does not fully address anticipated changes in invertebrate community parameters and should be expanded to include additional community metrics. Also, EPA is concerned that the analysis of instream habitat is based solely on measures of minimum habitat availability and requests that the Corps expand the analysis to include other habitat characteristics, including heterogeneity and quality, and incorporate a risk-based approach or an effective habitat time series analysis to assess time series changes in populations. These comments are consistent with our concerns outlined in EPA's comment letter for the Agency Review Draft dated January 31, 2009. Each of these concerns and requests is outlined in greater detail below.* **Response #765-26:** Please see the responses to Comment ID 5165. Additional invertebrate community metrics, including EPT species and changes in community composition have been included in the FEIS in Sections 3.11, 4.6.11, and 5.11.

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		As discussed in the response to Comment ID 5164, the use of PHABSIM in the EIS is appropriate. Other habitat characteristics, such as heterogeneity and quality are more difficult to model and that level of detail is not necessary for the purposes of the EIS. Also, a risk-based approach is not feasible and not necessary for EIS-level of detail. ***Comment #765-25*** *(ID 5165)**:*** *1) Appropriate metrics for analysis: In the Draft EIS, the only community parameters used were species richness and density. EPA is concerned that these metrics alone may not be appropriate to characterize the impacts of flow diversion associated with the proposed action. EPA requests that the Corps expand the analysis to include additional community metrics that address changes in the functional composition of species assemblages. These analyses should include, at a minimum, a characterization of community metrics, including dominance, evenness and % Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa. The analysis should also include a discussion of the potential impacts on aquatic organisms of extended dry years, including potential changes in aquatic communities, populations, life history traits and survival. These additional analyses should not require any additional data collection, just re-analysis of existing data. Species richness values reflect the total number of taxa present, but this metric is not effective in capturing potential changes in community composition due to an altered flow regime. For example, the total number of taxa may not change significantly following flow diversion, but types of invertebrate and fish taxa may shift to species less tolerant of the natural flow regime that have not adapted to survive in systems with high magnitude spring peak flows. Research has shown that reduced flows affects community composition, where species adapted to the natural flow regime may be displaced by other dominant, generalist*

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		species that are less tolerant to seasonally high flows[4,7]. In the absence of a diverse native fish community in these streams, the functional composition of invertebrates is an important indicator of ecosystem change and the ability of the system to maintain healthy aquatic life. As such, additional emphasis should be placed on quantifying potential impacts to invertebrate community parameters. FOOTNOTES: [4] Dewson, Z.S., A.B. W. James, and R.G. Death. 2007. A review of the consequences of decreased flow for instream habitat and macroinvertebrates. Journal of the North American Benthologicol Society, 26: 401-415. [7] Poff, N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegaard, B.D. Richter, R E. Sparks, and J.C. Stromberg. 1997. The Natural Flow Regime: A Paradigm for River Conservation and Restoration. BioScience 47(II): 769-784. In the literature, the response of density metrics to flow diversion has been variable, in part due to changes in community composition, the severity of flow reduction, reductions in habitat area, and the magnitude of change to habitat suitability[4]. For example, density may not change with reductions in flow, but the overall habitat area is reduced which means that organisms become concentrated in a smaller area. Therefore, the overall abundance of organisms, and consequent ecosystem productivity, in the affected stream segments may potentially decline, despite a lack of change in density metrics. Because of the confounding factors associated with flow diversion and density metrics, EPA requests that future NEPA documentation use the community metrics proposed above to characterize impacts in addition to density. **Response #765-25:** Additional invertebrate community metrics, including EPT species and changes in community composition have been included in FEIS Sections 3.11, 4.6.11, and 5.11.

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		Comment #765-24 *(ID 5164)**:*** *Instream Habitat analyses: EPA is concerned that impacts to aquatic resources are based mainly upon a measure of "minimum habitat availability." The quantitative model called Instream Flow Incremental Methodology (IFIM) was used to assess habitat availability for fish at different flows. This methodology is used to determine whether the weighted usable area (in square feet) is suitable over a distinct segment of stream, and assess whether minimum habitat availability is impacted by the proposed action and other alternatives. While this methodology is useful to reveal when conditions become unsuitable for various species or life stages, it fails to assess whether all necessary habitat parameters are present for survival, including habitat for prey, connectivity to refugia, suitable water quality, and food web relationships. A risk-based analysis of flows, water quality and habitat changes would be more appropriate to characterize project impacts than IFIM alone. In a risk-based approach, a range of possible outcomes could be modeled by assessing the interaction of multiple factors on fish communities. The results from this IFIM methodology suggest that reducing the spring snowmelt peak flows is beneficial to aquatic communities in segments of Vasquez Creek and the Fraser River, stating that lower runoff would tend to provide increased habitat availability in average and wet years. The scientific literature has consistently shown that the role of floods and spring snowmelt peak flows in long-term maintenance of instream habitat, aquatic insect diversity, native fish species and ecosystem productivity is much more critical to fish and invertebrate communities than the short-term negative effects on their habitat. In the Fraser Basin, research has shown that moderate flow events, occurring in an unaltered flow regime approximately every 5-10 year, have been shown to be critical in maintaining stream morphology in*

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		diverted sub-alpine streams.[8] Therefore, the preservation of peak flows in spring runoff periods is critical to habitat maintenance, and thus the Draft EIS needs to characterize potential impacts to aquatic resources associated with a reduced magnitude and/or frequency of spring snowmelt peak flows, including potential changes to riffle-pool complexes or habitat availability associated with vegetation encroachment. Additionally, if there are long-term changes in flow regime, compared with the flow regime when data were collected for the IFIM studies, due to decreases in magnitude or duration of peak flows, the habitat information may no longer apply. Alone, this methodology is insufficient to characterize the impacts of this project, and should be used in combination with a risk-based approach as described in the previous paragraph or expanded to include an effective habitat time series analysis to assess time series changes in populations. FOOTNOTE: [8] Ryan, S. 1997. Morphologic Response of Subalpine Streams to Transbasin Flow Diversion. Journal of the American Water Resources Association, 33: 839-854. **Response #765-24:** IFIM, or more specifically, PHABSIM, does not identify habitat for fish prey, connectivity to refugia, water quality, or food web relationships, as stated in this comment. However, in streams, these are complex interactions and the information on all the components of the interactions does not exist for the streams in the Project area. This level of detail is not customarily known for many streams. The larger streams in the Project area, the ones which have PHABSIM habitat relationships, currently are functioning ecosystems and these interactions, no matter how complex, are present and being sustained under existing conditions. These interactions do not need to be studied or quantified

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		or modeled to exist and the assumption that these processes of healthy streams are occurring in the larger streams in the study area is reasonable and appropriate for the purposes of this EIS. PHABSIM, then, is a method to assess changes in habitat with changes in flow, which would be the result of the Project. As long as the flow changes still allow the processes of the stream ecosystems to function, then PHABSIM is an appropriate tool for impact evaluation. In the larger streams in the Project area, the changes in flow are not of sufficient magnitude to prevent these processes from functioning. More specifically, habitat for prey and food web relationships in the larger streams in the Project area are not modeled by PHABSIM but would not be expected to fundamentally change with the Project. Although the details of some aspects could change, such as periphytic algae production could be increased or decreased, there would not be a complete elimination of algae production and a loss of this component of the stream food web. Similarly, habitat for prey organisms, benthic macroinvertebrates, may be changed in quality or amount, but invertebrates would persist in these streams and the food web would be intact. Water quality is evaluated in FEIS Sections 3.2, 4.6.2, and 5.2. In both the DEIS and FEIS, the results of the water quality evaluations were incorporated into the evaluations for aquatic biological resources. Therefore, despite the fact that these processes are not modeled by PHABSIM, the assumption that they would continue to function is reasonable and the use of PHABSIM in the EIS is appropriate for impact evaluation. The above discussion concerns the larger streams in the Project area that would experience changes in flow with the Project but would not be fully diverted. In smaller tributary streams, especially ones that are

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		fully diverted, there may be interruptions in some stream processes. FEIS Sections 3.11, 4.6.11, and 5.11 have been revised to include more discussion of the impacts of reduced flows. There are no adequate models or approaches for a risk-based approach to impact analysis in the specific circumstances of the streams in the Project area. This approach is beyond the scope of the EIS and is not feasible and not necessary for impact evaluation. The implication in this comment that the importance of high flows was ignored in the DEIS is incorrect. The impacts of reduced high flows on channel maintenance, flushing flows, and sediment deposition are discussed in FEIS Section 5.3 and were incorporated into the aquatic biological resources impact evaluation in both the DEIS (see page 4-307) and in FEIS Section 4.6.11. ***Comment #765-23*** *(ID 5163)**:*** *Technical concerns: The Aquatic Resources Technical Report presents habitat information for all stream segments in the Fraser River basin and characterizes each stream as "mildly" or "severely" diverted. The report does not provide the reader with definitions of "mild" and "severe" diversions in relation to stream flows, and instead arbitrarily bases the definition on aquatic community response. For example, despite the fact that there are no bypass flows on Middle Fork Ranch Creek, the report states "this stream appears to be a "mildly" diverted stream due to the presence of a diverse invertebrate population" (ARTR page 41). Similar statements were made for West Elk Creek, Jim Creek, and Meadow Creek. The fact that the invertebrate populations are diverse may arguably be dependent upon the stream flows, but the magnitude of streamflow diversion is certainly not dependent on*

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		the invertebrate community that stream supports. The severity of diversion should be defined based upon stream flow (e.g., streams without bypass flows are "severely" diverted) and the document should be edited to reflect this. **Response #765-23:** FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows in the Fraser and Williams Fork river basins diverted by Denver Water. This would allow the reader to compare the percentage of natural flows with past diversions at each of Denver Water's Diversion locations modeled in PACSM under Current Conditions, Full Use of the Existing System, and for each of the Moffat Project alternatives. The existing conditions descriptions of flow and aquatic organisms in diverted tributary streams has been revised and expanded in FEIS Section 3.11 to include a better characterization of the amount of diverted flow in the tributaries. FEIS Section 4.6.1 has been revised to include information concerning the total amount of water diverted from tributaries. This information has been incorporated into the aquatic biological resources sections of the FEIS, sections 3.11, 4.6.11, and 5.11. ***Comment #765-14*** *(ID 5162)**:*** *Cumulative Impacts Additional information on past diversions would substantially improve the cumulative impacts analysis and provide insights on the current baseline that the current analysis lacks. The current conditions reflect a severely altered system, as significant past and present water withdrawals already adversely impact the aquatic community. Any additional impacts, either between 2006 and 2016 or following implementation of the proposed project, could lead to significant changes to the aquatic resources and water quality of the*

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		Fraser River Basin. Because the system is already substantially altered, additional diversions, whether "minor" or more substantial, will likely cause or contribute to significant degradation and could potentially lead to non-linear changes in the ecological system, per 40 CFR § 230.1 O(c). As stated above, the scientific literature points to potential disproportionate impacts beyond certain magnitudes of diversion, suggesting that at greater percentages of diversion, the ecological response to additional incremental water withdrawal may no longer be linear. Therefore, an understanding of the disparity between the current baseline conditions and the natural conditions can aid in assessing the overall degradation of the system. Disclosure of natural flows is necessary to characterize the cumulative impacts of diversions in the basin, per 40 CFR § 230.24. **Response #765-14:** To provide more information on the impacts of past and current operations on stream channels, FEIS Section 3.1 was revised to provide a discussion of the natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System and each of the Moffat Project alternatives. ***Comment #765-34*** *(ID 5161)**:*** *The Draft EIS has limited discussion on climate change and generally dismisses influences as too uncertain due to a variety of potential impact outcomes. However, potential reductions and/or temporal changes in natural runoff and flow have been identified in various research documents as potential effects from climate change. Therefore, it is reasonable to consider this degree of uncertainty in operational design and analysis of this project, and a model should be developed that analyzes a scenario*

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		where flows are reduced substantially as a result of climate change. At a minimum, the Draft EIS should include consideration of potential climate change influences on hydrology being described in the Colorado Water Conservation Board's "Colorado River Water Availability Study" (to be available for public review in March 2010). Estimates of potential incremental changes in hydrology due to climate change influences should be included in the cumulative impacts analysis and mitigation design. **Response #765-34:** The DEIS addressed climate change in Section 5.4 and described the impacts of expected yield of the Moffat Collection System related to earlier and more concentrated spring runoff: "Many scientific studies have predicted an increase in temperatures, resulting in changes in the composition of winter precipitation and the timing of spring snowmelt. In other words, as temperatures rise the West could receive more winter precipitation in the form of rain versus snow and the snow that does accumulate would melt earlier in the spring than in past years. In Colorado, the onset of stream flows from melting snow has shifted earlier by two weeks between 1978 and 2004 and the timing of runoff is projected to shift earlier in the spring (University of Colorado et al. 2008). If this were to occur, it is likely that the yield of the Moffat Collection System would decrease due to existing capacity constraints. The Moffat Collection System canals and tunnels are only capable of transporting a certain amount of water before reaching hydraulic limitations. Additionally, South Boulder Creek is only capable of transporting approximately 1,200 cfs at Pinecliffe before flooding concerns arise. If runoff were to occur in a condensed timeframe, it is likely that hydrological limitations in the Moffat Collection System could decrease Denver Water's yield.

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		Furthermore, a condensed timeframe for runoff would likely mean a reduction in the number of days Denver Water's water rights is in priority to divert water. This could result in Denver Water building additional replacement sources to ensure an adequate supply of water for its customers." Although there is valid concern in the scientific community that global climate change may affect future water supplies in Colorado, there is little quantitative or even qualitative data with which to accurately predict or portray these changes, and consequently with which to integrate reasonably predictable cumulative effects of the proposed actions. The 2008 Western Water Assessment report prepared for the CWCB, Climate Change in Colorado, indicates that, "In all parts of Colorado, no consistent long-term trends in annual precipitation have been detected. Variability is high, which makes detection of trends difficult. Climate model projections do not agree whether annual mean precipitation would increase or decrease in Colorado by 2050. The multi-model average projection shows little change in annual mean precipitation." The 2009 USGS Circular 1331, Climate Change and Water Resources Management: A Federal Perspective, indicates that climate change has the potential to affect many sectors in which water resource managers play an active role, including water availability. The study concedes two pertinent points: (1) the best available scientific evidence based on observations from long-term monitoring networks indicates that climate change is occurring, although the effects differ regionally; and (2) climate change could affect all sectors of water resources management, since it may require changed design and operational assumptions about resource supplies, system demands or performance requirements, and operational constraints. These studies reflect general trends that there is concern

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		regarding the effect of climate change on the proposed actions, however the absence of quantified climate-induced decreases in flows related to the proposed actions makes it impossible to evaluate the changes with more than a speculative quality. Climate change is an evolving science, as such the Corps updated the FEIS (Section 4.4) with more recent technical documentation, including the joint Corps-U.S. Department of the Interior, Bureau of Reclamation (Reclamation) planning document titled Addressing Climate Change in Long-Term Water Resources Planning and Management: User Needs for Improving Tools and Information (Brekke 2011). The concept of systematic interdisciplinary approach to cumulative effects is central to NEPA analysis, but is only defined in very general terms. Accordingly, the Act relies on the Federal agencies to establish their own methods and procedures within the framework of the regulatory requirements. Therefore, the Corps as the lead Federal Agency of the Moffat Project EIS believes the analysis is adequate. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Comment #765-38*** *(ID 5160)**:*** *MITIGATION AND MONITORING The impacts of greatest concern include the potential adverse changes to the aquatic ecosystem following the inundation of an expanded Gross Reservoir on its perennial tributaries and the impacts to aquatic ecosystems resulting from diversion of additional flows and other changes in flow management in the Williams Fork, Fraser, Colorado, Blue and North Fork South Platte River Basins. The Draft EIS*

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		states: "For all action alternatives, additional Denver Water diversions would occur in average and wet years and would be highly concentrated during the runoff months in May, June, and July" (Draft EIS page ES-16). It is important to note that the majority of streams with Denver Water Board diversions will have additional diversions other times of the year, including winter, as part of this project. EPA is concerned that the current baseline conditions and impacts associated with this project have not been adequately assessed, disclosed or mitigated. The proposed mitigation of impacts in Appendix M of the Draft EIS does not adequately compensate for the impacts associated with this project. As stated above, the impacts analysis used to determine indirect (secondary) and cumulative impacts to water quality and aquatic resources is insufficient, should be substantially revised, and the revised conclusions need to be disclosed and used to determine the appropriate scope of mitigation. Without an adequate characterization of impacts associated with the proposed action, it is not possible to propose an appropriate level of mitigation to offset impacts. According to 40 CFR § 1508.2, mitigation is an essential tool for agencies to use to avoid, minimize, rectify, reduce, or compensate for any adverse environmental impacts associated with their actions. Through the NEPA process, adequate mitigation measures should be transparent and consider future environmental impacts so that monitoring activities are designed and implemented to measure effectiveness. NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." (42 USC § 4332(2)(E)). Concerns regarding environmental impacts and the lack of adequate mitigation are described below.

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		Response #765-38: The analysis of impacts to riparian habitat included both direct losses of habitat from construction and inundation at Gross Reservoir (DEIS Section 4.6.1.1), and discussion of indirect impacts due to stream flow changes at study sites along South Boulder Creek both above and below the reservoir (DEIS Section 4.6.1.2). The miles of affected stream reaches, along with acres of riparian vegetation along them, are provided in DEIS Table 3.6-7. The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions ("baseline") in 2006 and Full Use with a Project Alternative in 2032. FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Additional analysis related to water quality and aquatic biological resources was conducted for the FEIS based on feedback and coordination with the

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		EPA. Please refer to FEIS Sections 4.6.2, 4.6.11, 5.2 and 5.11. ***Comment #765-37*** *(ID 5159)**:*** *Pursuant to 33 CFR § 332.4 and 40 CFR § 230.94, Compensatory Mitigation/or Losses of Aquatic Resources, a compensatory mitigation plan must be submitted and approved by the Corps before the District Engineer can issue an Individual CWA Section 404 permit. In accordance with the Guidelines, a permittable project must not cause or contribute to significant degradation, either individually or cumulatively, of the biological, physical and chemical characteristics of the aquatic ecosystem, special aquatic sites (e.g., riffle and pool complexes) and human use characteristics (e.g., recreational and commercial fisheries, water-related recreation and aesthetics). When the impacts of this project are analyzed in combination with past and reasonably foreseeable actions, the degradation to the aquatic ecosystem in the Williams Fork, Fraser and Colorado River Basins may reach a level that is likely to be significant. Any project that contributes to this significant degradation, even if the contribution is 'minor' as stated in the Draft EIS, requires compensatory mitigation in order to reduce those impacts below a level of significance, or is not in compliance with Part 230.1 O(c) of the Guidelines. There are available mitigation opportunities that may offset the significance of the impacts and minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River Basins. EPA is particularly concerned with the lack of mitigation for impacts to diverted streams. While the Draft EIS has concluded that impacts to stream resources associated with this proposed action range from none to minor impacts, it should be noted that the 'minor' impacts span over 90 miles of stream in the Williams Fork and Fraser River Basins. Mitigation should be proposed for aquatic life and*

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		habitat losses from diverted streams in these basins, as 'minor' secondary impacts aggregated over 90 miles of stream and adversely affecting an entire watershed, are not, when considered together, trivial impacts. Even 'minor' impacts to over 90 miles of stream can be considered significant, and as such, appropriate mitigation should be proposed to fully compensate for these yet-to-be-determined unavoidable impacts on a broad scale so the project does not cause or contribute to significant degradation of aquatic resources. In-kind mitigation measures may include improving flows to the upper Colorado, Williams Fork and Fraser Rivers by providing bypass flows through diversions on multiple tributary streams. Bypass flows maintain aquatic habitat connectivity within the stream, allowing for carbon export and recolonization of dewatered segments by upstream invertebrate colonists, and have been shown to mitigate some of the severe impacts associated with complete dewatering[9]. Because mitigation for habitat losses, including bypass flows on low order tributaries of the Fraser and Williams Fork basins, can have cumulative beneficial effects on downstream waters, they provide opportunities to offset the significance of the stream impacts (which are considered difficult to replace) and help minimize the project's contribution to significant degradation in the Fraser, Williams Fork and Colorado River Basins. Additional opportunities for mitigation may include implementing options discussed in the Grand County Stream Management Plan, a 'virtual' Shoshone call or acquisition of other senior water rights for instream flows. FOOTNOTE: [9] Pepin, D., N.L. Poff, and J. Baron. 2002. Ecological Effects of Stream and River Water Development. In: Rocky Mountain Futures (1. Baron, ed.), Island Press, 113-132.

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		Response #765-37: Denver Water has committed to provide flushing flows in the Fraser River, St. Louis Creek, Vasquez Creek, and Ranch Creek. Denver Water has also committed to forgo diversions when stream temperatures associated with low flow conditions are elevated. Refer to FEIS Appendix M for a description of the conceptual mitigation measures. The Corps is considering imposing such permit conditions to mitigate effects in the aquatic environment, if a permit is issued. In addition, to compliment the mitigation measures, Denver Water is committed to the LBD Cooperative Effort to enhance the existing environment and stream flow conditions (FEIS Section 4.3.1). For example, Denver Water will work with the Management Committee of the LBD Cooperative Effort to coordinate operations of its diversion structures in an effort to provide flushing flows, enhance peak spring flows and/or augment low flows. Specific enhancements that could address low flow and flushing flows include: • 1,000 AF annually of bypass water from the Fraser Collection System for environmental purposes. • Up to 1,000 AF annually of releases from Williams Fork Reservoir and 2,500 AF of carry over storage in Williams Fork Reservoir for environmental purposes. • Denver Water agrees not to reduce USFS bypass flows during a drought unless Denver Water has banned all residential lawn watering in its service area (Denver Water has never banned residential lawn watering). FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will

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		determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. The GCSMP has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following resources: water quality (Sections 3.2 and 4.6.2), channel morphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), PHABSIM data for analysis of aquatic biological resources (Sections 3.11, 4.6.11, and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15). Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Comment #765-42*** *(ID 5158)**:*** *Additional mitigation options to replace the permanently lost riiffle and pool complexes upstream of Gross Reservoir may include restoration of dewatered riffle and pool complexes on the West Slope by establishing bypass flows on several tributaries of the Fraser and Williams Fork Rivers. While the Mitigation Rule speaks to the need to use the watershed context to the extent appropriate and practicable, this project represents a unique circumstance, where the location of impacts spans watershed boundaries due to the transbasin diversion of water. The Mitigation Rule was not intended to transfer impacts or mitigation from one watershed to another, but to provide mitigation where project impacts occur. Because of the hydrologic connectivity between basins established by the Moffat Tunnel, and the fact that the project is creating impacts on both the East and West slopes of the Continental Divide, enhancement and restoration opportunities should be explored in both*

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		basins. Because aquatic resources in the Fraser and Williams Fork River Basins are heavily impacted by water withdrawals, it is our best professional judgment that the best result for the aquatic ecosystem is to provide mitigation both in the South Boulder Creek Basin and the Fraser and Williams Fork Basins. **Response #765-42:** FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS and includes mitigation for the Fraser and Williams Fork river basins. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 4040 Permit conditions, if a permit is issued. ***Comment #765-41*** *(ID 5157)**:*** *EPA has several concerns associated with the Additional Environmental Storage proposal at Gross Reservoir (Appendix M). The additional 5,000 AF will raise the dam an additional 6 feet, yet no information is provided in the Draft EIS as to the additional direct impacts associated with the increased reservoir size. Appendix M infers that this information is contained in the Gross Reservoir Environmental Pool Operations Model (AMEC, June 14,2009), however EPA was unable to locate this information in the document. This information needs to be included in the Draft EIS as part of the proposed action in order to assess the Least Environmentally Practicable Alternative (LEDPA) pursuant to the Guidelines and to identify how much additional mitigation may be necessary. Also, the Draft EIS states, "the Additional Environmental Storage would generally be filled from April through September by exchanging water owned by the City of Boulder and Lafayette, rather than by water from the Moffat Collection System,*

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		which includes water diverted from the West Slope and water diverted under Denver Water's Gross Reservoir storage right" (Appendix M, p. MIS). A 404 Permit Condition should be required to assure that no additional west slope diversions are used to fill the environmental pool, either via exchange or otherwise. **Response #765-41:** Flow changes associated with the Proposed Action with Environmental Pool were quantified/modeled and assessed for recreation, surface water, and aquatic biological resources. Refer to Attachment A in Denver Water's Proposed Mitigation Plan in DEIS Appendix M. Ground disturbance around Gross Reservoir was assessed for 10 feet above the full capacity reservoir for the Proposed Action (7,410-foot elevation). ***Comment #765-40*** *(ID 5156)**:*** *The mitigation proposed for Colorado and Fraser River temperature is inappropriate, as it only addresses August maximum temperatures in relation to concurrent withdrawal. The Draft EIS and subsequent mitigation plan need to consider delayed temperature responses, where removal of spring snowmelt flows can potentially affect late summer temperatures. In systems dominated by a spring snowmelt peak, the peak flows are critical to maintaining temperatures throughout the year. With diversion of spring snowmelt peak flows, there is reduced loading, which reduces groundwater recharge and reduces coldwater saturation of wetlands, reservoirs, alluvium and other areas where flows become temporarily suspended. This in turn leads to an earlier increase in temperatures during the summer, as there are reduced volumes of cold water to buffer the warming from solar radiation. Also, due to potential reductions in groundwater recharge, there is likely a greater overall reduction in*

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		flow in later summer, which exacerbates temperature issues, as there is less overall mass to heat. **Response #765-40:** A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). In addition to monitoring stream temperatures, Denver Water has proposed to bypass additional water when stream temperatures reach a certain level. ***Comment #765-22*** *(ID 5155)**:*** *In order to address the issues we raised in the' Groundwater' section of this comment letter, EPA recommends monitoring over time of groundwater and surface water at defined locations. Groundwater monitoring should include water levels in wells and groundwater quality, especially given the potential impacts from sewage effluent. If impacts greater than those discussed in the Draft EIS are found, mitigation measures should be implemented. EPA would like to work with the Corps and the applicant to establish a monitoring program and to define potential mitigation measures.* **Response #765-22:** If the Project is authorized, the Corps would consider the comment in developing permit conditions. The objectives of groundwater or surface water monitoring would need to be clearly defined for the purposes of the Project. It is also important to plan the details of how the Project objectives would be achieved by the monitoring data, including the measurement locations, sampling parameters, and frequency. Furthermore, it is important to define how decisions regarding mitigation measures will be linked to the monitoring results. These decisions

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		must recognize that the monitoring data will show the effects of seasonal and long term weather variability as well as impacts caused by other water users. These non-Project effects on stream flow and groundwater levels would tend to obscure the effects of the Moffat Project, and thus need to be considered in developing the monitoring plan. The monitor well installation and groundwater data collection in the fall of 2010 would be useful in developing an effective hydrologic monitoring plan. ***Comment #765-39*** *(ID 5154)**:*** *In summary, the following concerns regarding the mitigation plan (Appendix M) are provided for consideration regarding our determination that the proposed mitigation is not adequate to fully compensate for the amount and type of resource impacts associated with the proposed project: • The plan does not assess additional potential adverse impacts to West Slope streams from additional water withdrawals during the spring snowmelt period and other times of the year associated with the proposed action; • The plan relies on arbitrary criteria and inadequate methodologies to characterize potential impacts to aquatic life associated with the proposed action; • The mitigation plan may not sufficiently address or provide mitigation for adverse impacts to South Boulder Creek, Forsyth Gulch, Winiger Gulch Tributary, Winiger Gulch and an unnamed southern tributary; • Proposed mitigation on South Boulder Creek, alone, may not be sufficient to replace the riffle and pool complexes and associated functions and values that will be lost with direct impacts to 8,356 linear feet of streams tributary to the reservoir; • Impacts of a 5,000 AF Additional Environmental Storage pool, including additional loss of riffle and pool complexes from inundation, have not been characterized in the Mitigation Plan or the Draft EIS; • The mitigation plan does not sufficiently address*

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		the potential to violate the state water quality standard for temperature; • The mitigation plan needs to include a monitoring and adaptive management plan for impacts to water quality, groundwater, stream morphology and aquatic life so that if impacts greater than those discussed in the Draft EIS are found, mitigation measures can be implemented. **Response #765-39:** FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. ***Comment #765-8*** *(ID 5153)**:*** *ALTERNATIVES ANALYSIS Adequately defining the project purpose and need statement is critical for developing a broad range of alternatives in the Draft EIS, including subsequent identification of the least environmentally damaging practicable alternative (LEDPA) for compliance with the CWA Section 404(b)(I) Guidelines (Guidelines). EPA recommends the Draft EIS purpose and need statement should be more broadly defined: "to provide a portion of additional water supply for Denver Water's Combined Service Area future needs." For example, the NEPA document for the Denver Water Two Forks Water Supply Impoundment (Two Forks) project had a general purpose and need statement such that a broad range of alternatives was considered: "(t)he purpose of Denver's proposed projects is to provide a dependable future water supply for the metropolitan area."*

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		Response #765-8: The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. ***Comment #765-9*** *(ID 5152)**:*** *EPA has determined that the terms "basic" and "overall project purpose" are to be used interchangeably and are not intended to have distinct meaning. See Final Determination of the U.S. Environmental Protection Agency's Assistant Administrator For Water Pursuant to Section 404(c) of the Clean Water Act Concerning the Two Forks Water Supply Impoundments, Jefferson and Douglas Counties, Colorado, November 23, 1990, Page 2, n. 2. It appears that in the current project the Corps continues to define "overall project purpose" and "basic project purpose" to have separate meanings where the overall project purpose is more specific to the applicant's project thereby eliminating potential practicable alternatives. Regardless of the applicant's stated purpose and*

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		need in the Draft EIS, an independent determination by the Corps of the basic/overall project purpose is necessary. In late 2003 and early 2004, EPA reviewed the adequacy of the purpose and need statement for the project. EPA raised significant issues to the Corps during that period including that the applicant's four separate project needs could be considered separate project purposes (i.e., reliability, vulnerability, flexibility, and firm yield). Denver Water's desire to resolve all four problems with one federal action may have precluded identification of available, less damaging practicable alternatives. EPA's recommendation has been and continues to be that a single, basic project purpose with alternatives addressing that single purpose be defined. Despite our comments detailing the independent nature of these project purposes, the Draft EIS identifies the same four project needs and has also specified the two underlying major issues of timeliness and location as additional considerations in defining and analyzing alternatives, all of which inappropriately limit the alternatives evaluated. If the Corps believes that the separate project purposes (needs) are not independent and are interconnected, then the future NEPA documentation should clearly defend this assertion and provide additional rationale supporting these needs including the potential alternatives that could address those needs and which are standard industry practices for water supply managers. **Response #765-9:** Please see the response to Comment ID 5153. In EPA Region 8's comments on the February 2004 version of Purpose and Need (dated March 4, 2004), EPA provided a statement of precedents. In their comment, EPA stated that "DW should be aware that all projects should be examined on a case-by-case basis, and approval of an applicant's desired project is not necessarily the result of such analysis.

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		It is appropriate for the permitting agency to consider water planning, safety factors, vulnerability, flexibility, reliability, etc. However, the degree to which any of these factors result in the narrowing of the overall project purpose statement, such that practicable alternatives are foreclosed, also needs to be evaluated." Based on this and numerous other communications and coordination with the EPA, and consideration of NEPA and Section 404 regulations, the Corps continues to adhere to established policy in that "the definition of the project purpose is not to be so broad as to render its effect on alternatives screening meaningless while at the same time it is not to be so restrictive that it unreasonably precludes alternatives that might meet the applicant's needs." ***Comment #765-12*** *(ID 5151)**:*** *EPA has concluded that it is an inappropriate interpretation of the Guidelines to integrate underlying project proponent needs into the project purpose and need statement or to use them as screening criteria, as this could result in elimination of alternatives that may otherwise be "practicable" considering the basic/overall project purpose of water supply. In addition, the Draft EIS incorrectly uses the applicant's purpose and need as one of the screening criteria (i.e., PN2: must supply water to Moffat Collection System) when the Section 404(b)(I) Guidelines direct alternatives to be evaluated, along with practicability, based on its ability to fulfill the basic project purpose (i.e., additional water supply for the service area) not the applicant's purpose and need for the project. 40 CFR § 230.1 0(a)(2).* **Response #765-12:** For NEPA/404 analysis, the Corps defines a project purpose statement in light of an applicant's stated objectives as well as the public's perspective (33

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		CFR Part 325 Appendix B, Section 9(b)(4)). The Applicant identifies the purpose(s) and need(s) to be addressed by the Proposed Action (may be single or multiple needs). The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Project purpose also allows Denver Water to simultaneously address the needs of its raw water and treated water customers versus developing a different Project purpose for each different customer class Denver water serves ---master meter, read and bill, total service, raw water customers in the Moffat Collection System, raw water customers in other parts of the system, augmentation customers, irrigation customers, non-potable reuse customers, etc. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. Therefore, supplying water to the Moffat Collection System was appropriately used as a criterion for alternative screening.

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		Comment #765-10 *(ID 5150)**:*** *Denver Water's desire to resolve all four needs with one federal action may have precluded identification of available, less damaging practicable alternatives. Such alternatives may include the more sustainable water supply and storage alternatives presented in the Draft EIS with some modifications, implemented alone, and/or in combination with other water storage alternatives. Additional practicable alternatives may be developed during review of the Draft EIS and before the Final EIS for consideration of compliance with the Section (b)(I) Guidelines.* **Response #765-10:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. ***Comment #765-11*** *(ID 5149)**:*** *Our review of the Draft EIS and Appendix K did not find information adequate for the evaluation of alternatives under the Clean Water Act 404 (b)(l) Guidelines. The majority of the problem is due to the inappropriate screening criteria that artificially constrained the range of alternatives that should have been considered. By using an overall purpose statement that includes the applicant's Purpose and Need statement and major issues, the screening criteria is narrowed and eliminates potentially less environmentally damaging and "practicable" alternatives from further examination in the Draft EIS For example, the Draft EIS' use of timeliness (Screen Criteria PN3) resulted in the elimination of a multitude of alternatives from consideration (Appendix B). While we understand the importance of this issue to the metropolitan area, the Draft EIS also states that Denver Water will seek temporary*

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		measures to address shortages including use of the Strategic Water reserve (safety factor) and other near-term strategies until 2030 (Draft EIS page 1-16). A project proponent's decision to pursue a permit should not dictate time frames in which a project is considered because it artificially eliminates alternatives that may otherwise be available to a project proponent applying early in the process. Because these measures are available and capable of being done, they should be considered when examining alternatives. Such timeliness factors should not render an alternative impracticable and delays are generally not an appropriate basis for screening alternatives. In addition, the logistics screening criteria LG3 eliminated alternatives that lie within areas known to be integral to the development plans of other entities, including other rationale relating to land status. Alternatives that are "available and capable of being done" may be considered practicable despite zoning designations or platting processes. Given that variances can be sought to change zoning and that land development status is usually not fixed until construction permits are sought, the logistics criterion used in the Draft EIS also likely eliminated alternatives that may still be practicable under the Guidelines. Finally, the 15,000 AF screening criterion for any new surface impoundment (Screen Criteria LP2) and storage requirement in one storage facility appears to have eliminated multiple storage sites that may be practicable and less damaging when used in combination with the other alternatives. **Response #765-11:** The Corps did not identify a least environmentally damaging practicable alternative (LEDPA) in the DEIS. The Corps will make a determination of the LEDPA based on its review of the information and analysis contained in the FEIS, per the Corps' Section 404 regulations.

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		Approximately 20% of the total yield requirement was selected because providing a yield in one year out of four of at least 15,000 AF (3,750 AF/yr is approximately 20% of 18,000 AF/yr). If an alternative provides less than 15,000 AF once in four years or less than 3,750 AF/yr it was screened out. This criterion was primarily used to screen out water supplies as opposed to storage components. For example, new water supplies in the Cache La Poudre, Big Thompson, St. Vrain, Clear Creek, and Lower South Platte basins were eliminated because these basins are generally over-appropriated and new water rights would likely not yield 3,750 AF/yr or 15,000 AF once in four years. For Screen No. 1, storage sites in these basins were screened independently of water supplies. For the water supplies that passed Screen No. 1, refer to Table 2-9. Storage would also be required to provide firming and regulation to deliver the water when needed during droughts. Based on a storage-to-firm yield ratio of 4:1, it would require five reservoirs of 15,000 AF to provide the 72,000 AF of storage required to meet the Purpose and Need. Incorporating that many surface storage sites into an alternative is probably too complex to reasonably implement and manage. However, with this minimum storage volume, sufficient flexibility remains to consider components that might possibly be combined into a reasonable alternative in a subsequent screening phase. ***Comment #765-36*** *(ID 5148)**:*** *EPA appreciates Denver Water's commitment to conservation as a means to achieve demand reduction, and we recommend inclusion of additional information regarding this important commitment For example, we suggest identifying the specifics of the conservation efforts (including the obligations defined through the fixed/special contracts and the short-term leases), quantification of the*

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		effectiveness of existing programs, and identification of necessary conservation program changes if there is a gap between current effectiveness and the anticipated 16,000 AF per year demand reduction. Disclosure of such information will help inform the public of the actions that will be necessary to meet the 16,000 AF per year demand reduction. We understand from Denver Water's website that such aggressive measures are planned for discussion in the update to the Integrated Resource Plan due for release in 2010. EPA encourages Denver Water to provide the most up-to-date conservation information available from the 2010 report, as well as all other revised information applicable to the Draft EIS. **Response #765-36:** As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 AF of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings.

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		Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. The Corps recognizes that Denver Water is currently developing a new IRP that will help guide water management over the next 40 years. Development of the new IRP is in the early stages and they are currently soliciting input from various stakeholders. The Corps will consider the information in the new IRP when it is finalized by Denver Water. ***Comment #765-2*** *(ID 5147)**:*** *AIR QUALITY The Moffat Collection System Project's Gross Reservoir is 18.5 miles from Rocky Mountain National Park and 45 miles from Eagles Nest Wilderness Area, which are both Federal Class I areas. Under the Clean Air Act, Federal Class I areas require special protection of air quality and air quality related values (AQRV's), such as visibility. The project is 11.5 miles from Indian Peaks Wilderness Area a sensitive Class II area. Gross Reservoir is located within the Denver Area ozone nonattainment area and CO and PM10 maintenance areas. Emission estimates presented in the Draft EIS for the project are primarily construction related. The estimates given differ under the various Alternatives, however, in many cases, CO, PM10 and NOx emissions are over 100 tons per year. Statements given in the Draft EIS indicate that the air quality impacts would be minor (pages 4-350 through 4-356) are not supported by any quantitative analysis. These high emission rates coupled with the proximity of Class I areas and located within the Denver nonattainment/maintenance areas indicate that a near field air impact and a screening level visibility analysis for the project should be included*

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		in the EIS. Sections 3.11.4 and 4.11.3.2 present a General Conformity Analysis for the project. Since the project is in the Denver ozone nonattainment area and Denver carbon monoxide and particulate matter less than 10 microns (PM10) maintenance areas and that the de-minimis thresholds may be exceeded by the project, we concur that a General Conformity analysis and determination should be conducted for the project, and the analysis must include direct and indirect emissions. Section 4.11.8, page 4-358 indicates that CDPHE would determine General Conformity with the State Implementation Plan (SIP). The General Conformity regulation 40 CFR § 93. I50(b), states that the "Federal agency must make a determination that a Federal action conforms to the applicable implementation plan in accordance with the requirements of this subpart before the action is taken." The CDPHE is required to review and advise on the Federal agency conformity determination. The EIS should present both the General Conformity Analysis and Determination for the project (i.e., how the proposed action would comply with the SIP and State regulations). **Response #765-2:** The Corps reviewed EPA's General Conformity rule and guidance for that rule (including changes promulgated after April 5, 2010 – 75 Federal Register 17254) and guidance available on EPA's website (http://www.epa.gov/air/genconform/faq.html). Within that guidance, there are a couple of references to the relationship of the General Conformity rule to NEPA (EPA 1994. General Conformity Guidance: Questions and Answers). The 1994 document addresses the timing of the General Conformity process: "….at the point in the NEPA process when the specific action is determined, the air quality analyses for conformity should be done." The Corps

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		has not yet determined the “specific action” for the Moffat Project and will not do so until the Record of Decision (ROD) associated with a Section 404 Permit is issued. A Corps’ Section 404 Permit, if issued for one of the Moffat EIS alternatives, will require that construction activities conform to Colorado State Air Quality standards. The Corps understands that because the average annual emissions of nitrogen oxides and carbon monoxide would each exceed 100 tons per year for each alternative, a conformity analysis, as discussed in FEIS Section 3.13.4, would need to be conducted. Denver Water would work with the CDPHE APCD to demonstrate conformity to ensure that the Project alternative that is permitted does not impair State and local efforts to improve or maintain air quality. Note that the Proposed Action emissions are the lowest of any of the alternatives. ***Comment #765-13*** *(ID 5146)**:*** *AQUATIC RESOURCES OF NATIONAL IMPORTANCE Colorado River EPA has determined that the upper Colorado River is an aquatic resource of national importance (ARNI), consistent with EPA's 404(3)(b) letter to the Corps regarding Windy Gap Firming Project, dated December 24,2008. The upper Colorado River provides a valuable habitat for many aquatic organisms, including four federally listed fish species. In addition, the upper Colorado River is a valuable commercial and recreational resource, providing economic benefits to Colorado's western slope communities. Segments of the Colorado River downstream of the confluence with the Fraser River are moderate to steep gradient and are characterized by riffle and pool complexes, special aquatic sites under the Guidelines (40 CFR § 230.45). Because wetlands comprise approximately 1-2% of the arid landscape in Colorado and over the last two centuries, Colorado has lost an estimated*

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		50 percent of its wetlands, the riparian wetland complexes, which are also special aquatic sites (40 CFR § 230.41), associated with the upper Colorado River provide a rare and unique habitat. **Response #765-13:** The Corps notes that the EPA determined the Upper Colorado River to be an aquatic resource of national importance (ARNI) in its WGFP 404(3)(b) letter to the Corps, dated December 24, 2008. ***Comment #765-1*** *(ID 5145)**:*** *Fraser River EPA has determined that the Fraser River is an aquatic resource of national importance (ARNI). EPA is concerned that flow diversion impacts to the tributaries of the Fraser River in combination with flow diversion on the Fraser itself may result in unacceptable adverse impacts to this resource. The Fraser River provides a valuable habitat for many aquatic organisms and offers plenty of opportunity for small to medium size stream fishing. In addition, the Fraser River is a valuable commercial and recreational resource, providing economic benefits to Grand County communities and resorts. Segments of the Fraser River downstream of the Moffat Collection System diversion structure are moderate to steep gradient and are characterized by riffle and pool complexes, special aquatic sites under the Guidelines (40 CFR § 230.45). Because wetlands comprise approximately 1-2% of the arid landscape in Colorado and over the last two centuries, Colorado has lost an estimated 50 percent of its wetlands, the riparian wetland complexes, which are also special aquatic sites (40 CFR § 230.41), associated with the Fraser River and its tributaries provide a rare and unique habitat. The Fraser River has a drainage area of 297 mi [2] and ranges from 7,900 ft to above 13,000 ft in elevation. The Fraser River is one of the major headwater tributaries to the Colorado River, located on the*

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		western slope of the Continental Divide in the Arapahoe National Forest. The Fraser River drains north from the vicinity of Berthoud pass for approximately 40 miles, carrying snowmelt from the Continental Divide to the Colorado River. The Moffat Collection System diverts water from a set of 31 municipal diversion structures on the Fraser River and its tributaries, and moves the water via nearly 28 miles of canals, pipes and siphons to the Moffat Tunnel, which carries the water under the Continental Divide to South Boulder Creek. After the Moffat Collection System began diverting flows (1936-2004), average annual stream flow for the Fraser River at Winter Park gage has decreased by 60% compared with flows prior to the existing Moffat Collection System (1911-1935). The proposed action will utilize current infrastructure to divert additional flows from the Fraser River and its tributaries through the Moffat Tunnel. All municipal diversions in the Fraser Basin are located approximately 9,500 ft above sea level. Management of these diversion structures is variable from year to year depending on weather, water demands and operational constraints. The collection system operates year-round, diverting water that is physically and legally available at each diversion point subject to minimum bypass flows and calls from downstream senior water rights. Streams that do not have minimum bypass requirements (and even those with downstream senior rights) are fully diverted at times during the year and no water is bypassed from those diversion structures. This leads to low-flow conditions that make riffle habitats absent for up to 2 km downstream. Bypass flows are maintained on ten structures, including the Fraser River, following an agreement between Denver Water and the USFS. At four of these diversions, Denver water is allowed to reduce the USFS minimum bypass flows when its customers are on restrictions. Current instream flow requirements

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		include these bypass flows, as well as numerous instream water rights held by the Colorado Water Conservation Board (CWCB), which are junior to Denver Water's rights. Because they are junior, Denver Water is not obligated to satisfy the CWCB rights. The Fraser River and its tributaries experience widely variable seasonal fluctuations in flows, with the largest flows resulting from snowmelt. Approximately 75% of the total annual flow occurs during the spring and early summer runoff period of May through mid-July. Peak flows occur for 1-2 weeks in late spring or early summer as warmer air temperatures initiate snowmelt and groundwater aquifers become saturated. During the remainder of the year, groundwater-induced baseflow conditions dominate the hydrograph[9]. Annual precipitation in the basin ranges from approximately 20 in/yr in the lower elevation valleys to 36 in/yr on Berthoud Pass. Riparian vegetation includes subalpine Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), lodgepole pine (Pinus contorta), willows (Salix and Populus species) and various herbaceous species[8]. FOOTNOTES: [9] Pepin, D., N.L. Poff, and J. Baron. 2002. Ecological Effects of Stream and River Water Development. In: Rocky Mountain Futures (1. Baron, ed.), Island Press, 113-132. [8] Ryan, S. 1997. Morphologic Response of Subalpine Streams to Transbasin Flow Diversion. Journal of the American Water Resources Association, 33: 839-854. The Fraser River downstream of the Moffat diversion is intensively used by the public for recreational activities and represents a valuable commercial and recreational resource. There are numerous access points for fishing, both in the montane and valley sections of the river, and the summertime economy of many Grand County resorts is linked to river-related activities such as fishing. The river is easily accessible from the Fraser River Trail, a highly utilized multi-use path along the Fraser River through Winter Park and Fraser. There

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		river is used for boating, with a 9 mile stretch of Class III+ to IV rapids through Fraser Canyon. Boating is limited by the diversions upstream, and the Fraser Canyon is only accessible to recreational boaters during several weeks of high runoff flows in the spring. **Response #765-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. The Corps acknowledges that the EPA determined the Fraser River to be an ARNI.

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Comment #1708 Helen M. Hankins, State Director United States Department of the Interior Bureau of Land Management, Colorado State Office 2850 Youngfield Street Lakewood, CO 80215-7093	United States Department of the Interior BUREAU OF LAND MANAGEMENT Colorado State Office 2850 Youngfield Street Lakewood, Colorado 80215-7093 www.blm.gov/co TAKE PRIDE IN AMERICA In Reply Refer To: 7250 (CO-932) MAR 10 2010 Mr. Scott Franklin, Moffat EIS Project Manager U.S. Army Corps of Engineers, Omaha District Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128 Dear Mr. Franklin: Please accept the enclosed Bureau of Land Management (BLM) Colorado State Office comments on the proposed Moffat Collection System Project. The BLM appreciates the Army Corp of Engineer's (ACE) recognition of the Wild and Scenic River analysis process currently underway as part of the revision of the Kremmling and Glenwood Springs Resource Management Plans. The BLM hopes that the enclosed comments will assist ACE and water users in clarifying potential impacts that could occur to resources managed by the BLM as a result of the proposed project. We also hope that the enclosed comments provide ACE with workable ideas for project mitigation that could be cooperatively implemented with Denver Water to minimize project impacts. If you would like to arrange further discussion of the enclosed comments, please contact Roy Smith, Water Rights Specialist, at 303-239-3940. Sincerely, Helen M. Hankins Helen M. Hankins State Director Enclosure cc: Dave Stout, Kremmling Field Manager Steve Bennett, Colorado River Valley Field Manager Jamie Connell, Northwest District Manager	***Comment #1708-2*** *(ID 2371)**:*** *Please accept the enclosed Bureau of Land Management (BLM) Colorado State Office comments on the proposed Moffat Collection System Project. The BLM appreciates the Army Corp of Engineer's (ACE) recognition of the Wild and Scenic River analysis process currently underway as part of the revision of the Kremmling and Glenwood Springs Resource Management Plans. The BLM hopes that the enclosed comments will assist ACE and water users in clarifying potential impacts that could occur to resources managed by the BLM as a result of the proposed project. We also hope that the enclosed comments provide ACE with workable ideas for project mitigation that could be cooperatively implemented with Denver Water to minimize project impacts. If you would like to arrange further discussion of the enclosed comments, please contact Roy Smith, Water Rights Specialist, at 303-239-3940.* **Response #1708-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #1708-7*** *(ID 2370)**:*** *BLM Colorado Comments - Moffat Collection System Project EIS Assumptions Used For Impact Analysis - The document uses the assumption that any changes in stream flows of 10 percent or greater warrant a detailed analysis of impacts. However, the document doesn't provide any rationale or scientific basis for using the 10 percent threshold. For stream systems in which more than 60 percent of the native flows have already been diverted, a lower threshold for detailed analysis may be warranted. The BLM suggests utilizing a set of standard criteria for identifying the current health of the various stream segments that could be impacted, and then conducting more detailed analysis on stream*

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	BLM Colorado Comments – Moffat Collection System Project EIS **Assumptions Used For Impact Analysis –** The document uses the assumption that any changes in stream flows of 10 percent or greater warrant a detailed analysis of impacts. However, the document doesn't provide any rationale or scientific basis for using the 10 percent threshold. For stream systems in which more than 60 percent of the native flows have already been diverted, a lower threshold for detailed analysis may be warranted. The BLM suggests utilizing a set of standard criteria for identifying the current health of the various stream segments that could be impacted, and then conducting more detailed analysis on stream segments that are close to critical resource thresholds or that already exhibit signs of stream health impairment. **Cumulative Impacts Analysis –** The BLM believes that the cumulative impacts section doesn't contain a foundational analysis of the effects of past actions. The Draft Environmental Impact Statement (DEIS) states "Knowing whether a resource is healthy, declining, near collapse, or not functioning is necessary for determining the significance of any added impacts due to the Moffat Project." The DEIS contains an overview of past actions, but it doesn't contain any assessment of the current health and status of the potentially affected resources. The BLM suggests an analysis of historic data to determine what changes have occurred as a result of historic diversions, and analysis of more recent data to identify trends in resource conditions. This analysis is especially critical for the Williams Fork and Fraser Rivers, where a high percentage of historical changes to those systems are attributable to the proponent's actions. The BLM believes that additional analysis is warranted within the cumulative impacts section for impacts to the Colorado River, Williams Fork River, and to the Fraser River: • The document contains no analysis of impacts or conditions associated with the "Full Use of Existing System (2016)," so it is not possible to discern the differences between impacts associated with 2016 and impacts associated with implementation of the proposed action. Given that volumetric impacts associated with "Full Use of Existing System (2016)" are greater than impacts associated with the proposed action, it appears that identifying the 2016 impacts is essential to correctly identify impacts associated with the proposed action. • While impacts directly attributable to the proposed project represent less than 10 percent change in stream flows, impacts attributable to "Full Use of the Existing System (2016)," significantly exceed 10 percent change in flow rates and should be the subject of detailed analysis. For example, the proposed action results in flow reduction of up to six percent at the Colorado River near Kremmling gage, when compared to "Full Use of Existing System." (Table H-3.32). However, the proposed action, when combined with "Full Use of Existing System" results in flow reductions of up 18 percent as compared to "current conditions" at the Kremmling gage. (Table H-1.36) At locations further upstream, such as Colorado River at Windy Gap, flow reductions from the proposed action, when combined with "Full Use of Existing Facilities" go as high as 35 percent. (Table H-1.34). The BLM believes that reductions in flows of this magnitude warrant a detailed analysis. For the Colorado River segments, the BLM would suggest completing Instream Flow Incremental Analysis (IFIM) analysis for fish habitat, a riparian analysis that examines 1	*segments that are close to critical resource thresholds or that already exhibit signs of stream health impairment.* **Response #1708-7:** A screening criterion of 10% was developed to provide focus on stream segments within the overall study area that would experience a flow increase or decrease of greater than 10% based on average annual flow. The purpose of identifying these river segments was to focus the selection of sample sites, data collection and field work in areas that experience the greatest flow change. Because the study area covers several river basins, it was impractical to collect data on each individual sub-reach of every affected stream. Representative river reaches were identified within the Focus River Segments for detailed data collection and evaluation. A variety of representative river reaches were selected that were examples of or statistically representative of different resource conditions encountered in the study area. Data for the representative river reaches was evaluated and extrapolated to the overall study area. Identifying Focus River Segments may suggest that other river segments within the overall study area were not evaluated, however, that is incorrect. The only river segments that were not identified as Focus River Reaches were the Blue River below Green Mountain Reservoir, Colorado River below the confluence with Williams Fork River, Williams Fork River below Williams Fork Reservoir, and Muddy Creek below Wolford Mountain Reservoir. Flow changes for all of these river segments are discussed in FEIS Section 4.6.1. Impacts on resources in these river segments were also assessed, however, because they were not identified as focus segments, resource analyses relied on existing, available data.

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	impacts of changes in frequency and duration of flood flows, and a daily analysis of possible temperature changes. **Fisheries Analysis** – BLM is concerned that results of IFIM analysis are used as the conclusive indicator of potential fisheries impacts. It is likely that fish populations will respond to a variety of factors that are tied to flow rates, not just habitat availability. Such factors include temperature regimes, macroinvertebrate populations, and disease. The fisheries analysis should include population trend data for the existing condition, information the BLM believes is readily available from the Colorado Division of Wildlife. Because the influence of further reduced flows is difficult to predict, the BLM suggests that the adopted mitigation plan contain an adaptive approach to managing the fishery resource. If an adaptive approach is adopted, a variety of prescribed tools and mitigation can be brought to bear, in the event that the projected negligible impacts to fishery resources do not transpire. The BLM notes that Denver Water plans to divert the greatest amount of water in wet years following dry year sequences (Page 4-5). The BLM requests that ACE analyze the impact on fisheries of increasing the frequency and duration of consecutive dry years, because consecutive dry years typically result in poor fish recruitment. The BLM disagrees with one of the key assumptions of the fisheries impact analysis, described on pages 4-311 and 4-312. The BLM doesn't concur that extreme high flow or low flow events, which temporarily limit available physical habitat, are the primary driving factors in determining the size and health of fish populations. The text seems to suggest that changes in flow rates at times other than winter low flows and snowmelt runoff have minimal impact on fish populations. Changes in flow rates at other times of the year can have substantial impacts on foraging success, spawning success, recruitment success, and energy expended on competition with other fish. Ideally, a range of flows is needed to optimize aquatic system function, including flushing flows, channel maintenance flows, and seasonal high and low flows. The BLM believes this erroneous assumption should be removed from the text as a basis for saying that the proposed flow changes have negligible impacts. The BLM also disagrees with the assumption on page 4-313 which states that "as long as flushing flows are adequate to maintain substrate composition, invertebrates would have more favorable habitat availability with reductions in peak flows." First, this statement doesn't appear to be supported by any scientific research or literature citation. Second, observation of the Colorado River corridor indicates that the stream may be experiencing a problem with algal and fine sediment accumulations due to reduced flow rates. Third, larvae of invertebrates can suffer high mortality rates due to fine sediment accumulation. The DEIS discussion fails to acknowledge the critical benefits of flushing flows in removing fine sediments and algal accumulation. The BLM is also concerned that the DEIS portrays reduction in peak flows as a benefit to fishery populations, because more usable habitat is created. **Stream Temperature Impacts on Fisheries** – The BLM is very concerned about stream temperature issues in the segments of the Colorado River that are very close to violating 2	The analysis of resource impacts along river segments that were not identified as focus segments was re-evaluated in FEIS Chapter 4 based on flow changes anticipated with the Moffat Project on-line in combination with other RFFAs. ***Comment #1708-15*** *(ID 2369)**:*** *Cumulative Impacts Analysis - The BLM believes that the cumulative impacts section doesn't contain a foundational analysis of the effects of past actions. The Draft Environmental Impact Statement (DEIS) states "Knowing whether a resource is healthy, declining, near collapse, or not functioning is necessary for determining the significance of any added impacts due to the Moffat Project." The DEIS contains an overview of past actions, but it doesn't contain any assessment of the current health and status of the potentially affected resources. The BLM suggests an analysis of historic data to determine what changes have occurred as a result of historic diversions, and analysis of more recent data to identify trends in resource conditions. This analysis is especially critical for the Williams Fork and Fraser Rivers, where a high percentage of historical changes to those systems are attributable to the proponent's actions. The BLM believes that additional analysis is warranted within the cumulative impacts section for impacts to the Colorado River, Williams Fork River, and to the Fraser River: • The document contains no analysis of impacts or conditions associated with the "Full Use of Existing System (2016)," so it is not possible to discern the differences between impacts associated with 201 6 and impacts associated with implementation of the proposed action. Given that volumetric impacts associated with "Full Use of Existing System (2016)" are greater than impacts associated with the proposed action, it appears that identifying the 2016 impacts is essential to correctly identify impacts associated with the proposed action.*

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	regulatory standards. Specifically, the DEIS states: "all but one station experienced a DM or MWAT within 1 degree of the regulatory maximum, indicating that the river is very near regulatory standards. Changes in conditions, such as lower rainfall, higher temperatures, or lower stream flows could cause an exceedance of standards." (Page 3-41). The BLM is concerned that the likelihood of violations could increase if additional water is diverted from Williams Fork and Fraser River watersheds, and accordingly, we suggest a more intensive analysis of temperature issues, as described below. The BLM's rationale for requesting more detailed temperature analysis is that the monthly analysis provided in the DEIS does not allow a more detailed analysis of the period in which the river typically experiences problems with high water temperature, typically during July and August. It is clear that stream temperatures are affected by conditions on antecedent days. If the river experiences extended length and frequency of low flow periods as a result of the project, temperatures could rise significantly beyond the increase calculated in a monthly analysis. Typically, temperature impacts on fisheries are assessed for increases in both acute temperatures and average weekly temperatures. The BLM suggests that the EIS include a daily flow analysis of the annual period of July 15 through August 15, so that the reader can identify how much more frequently the low flow conditions that cause temperature concerns will occur. This daily analysis could be included in both the direct and cumulative impact sections. The BLM also suggests including a discussion of the impact of extended low flow and high temperature periods on the recruitment success, angling mortality and disease resistance for trout species. If these analyses reveal fish population impacts from temperatures, we also suggest a discussion on the resulting indirect impacts to recreational fishing opportunities. **Channel Maintenance Flows -** While the proposed changes to the river hydrograph may not affect overall stream morphology because of limited sediment supply, the BLM believes there may be a potential for significant impacts related to the interaction between fine sediments and algal growth. In other river systems in Colorado, the BLM has experienced situations in which the stream channel becomes "cemented" when algal growth and fine sediments are not washed out by high flow events. This "cementing" appears to increase when stream temperatures increase and when flood frequency decreases, as would be expected from the proposed action. This "cementing" drastically reduces the interstitial spaces available for fish spawning and drastically reduces the surfaces available for macroinvertebrate habitat. The BLM suggests analysis and discussion of this potential impact, and the Army Corps may want to consider mitigation measures for preventing this impact. As part of this analysis, the BLM recommends specific disclosure of the reduction in the number of years in which "wet" year hydrology will occur, and conclusions about whether any reduction in "wet" years will result in impacts to fine sediments and algal growth. **Riparian Analysis** – The riparian/wetland impact analysis appears to be incomplete, because it focuses only on changes to groundwater levels and to areas inundated by two-year flood events, which are only two factors controlling riparian community extent, composition, and vigor. The analysis should also examine the duration and frequency of flow events that influence the floodplain, but are of less or greater magnitude than 2 year flood events. If flood events that 3	*• While impacts directly attributable to the proposed project represent less than 10 percent change in stream flows, impacts attributable to "Full Use of the Existing System (2016)," significantly exceed 10 percent change in flow rates and should be the subject of detailed analysis. For example, the proposed action results in flow reduction of up to six percent at the Colorado River near Kremmling gage, when compared to "Full Use of Existing System." (Table H-3.32). However, the proposed action, when combined with "Full Use of Existing System" results in flow reductions of up 18 percent as compared to "current conditions" at the Kremmling gage. (Table H-1.36) At locations further upstream, such as Colorado River at Windy Gap, flow reductions from the proposed action, when combined with "Full Use of Existing Facilities" go as high as 35 percent. (Table H-1.34). The BLM believes that reductions in flows of this magnitude warrant a detailed analysis. For the Colorado River segments, the BLM would suggest completing Instream Flow Incremental Analysis (IFIM) analysis for fish habitat, a riparian analysis that examines impacts of changes in frequency and duration of flood flows, and a daily analysis of possible temperature changes.* **Response #1708-15:** Past Actions CEQ interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent

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	inundate areas between the edge of the channel and the edge of the floodplain are reduced in frequency and duration, the BLM would expect measurable changes in the extent, composition, recruitment success and vigor of the riparian community, because many riparian species are sensitive to the number of days within the growing season that their roots are inundated. Reduction of peak flows during wet years may further impair the remaining cottonwood communities along the Colorado River. Dramatic reductions in flow when additional project diversions occur may reduce reproductive success of cottonwood trees, which rely on slow, gradual reductions of flows after cottonwood seedlings are established on sand and gravel bars in the river channel. Finally, an analysis of impacts on floodplain functionality is needed to meet the obligation of federal agencies under the Floodplain Executive Order. The BLM notes that in several locations where channel assessments were performed, signs of potential channel aggradation were observed. **Wild & Scenic River Segment Descriptions** – We would be happy to discuss the BLM's approach to Wild and Scenic Rivers Criteria. Section 3.13 contains some omissions and errors regarding descriptions of segments determined as "eligible" as part of the BLM's planning process. First the section should note that "classification" is a description of the current level of development along a river corridor, so that the reader doesn't confuse classification determinations (wild, scenic, or recreational) with outstandingly remarkable values (ORVs), which can also bear the labels of scenic or recreational. Second, the Wild and Scenic Rivers Act does not constrain potential outstandingly remarkable values to the values listed in the text. The values listed in the text are only possible examples of outstandingly remarkable values. The document provides insufficient detail concerning the potentially affected eligible segments to assure the reader that the ACE has considered impacts to these segments. The BLM recommends inclusion of a table showing Colorado River segments 1 through 6, upstream/downstream terminus for each segment, classification for each segment, and outstandingly remarkable values for each segment. The BLM also recommends inclusion of a map so that the reader can easily locate each of these segments. This information is readily available on the BLM website for the Kremmling Field Office. The description of Wild & Scenic Rivers Analysis for the Blue River is confusing, because it states that segments have been classified as recreational and wild, which is not possible. Segments must be placed in either one of these classifications, but not both. The BLM also recommends a table for this section that shows location, classification, and ORVs for each segment. Since the time when the BLM's eligibility report was published, the BLM has determined that Blue River Segment 1 is not eligible, because of errors in the land ownership that were incorporated as part of the original analysis. **Recreation Impacts** – The document correctly identifies the range of boatable flows on the Colorado River. However, the document should also acknowledge that different flow rates within that range provides different types of boating experiences. The BLM considers maintenance of the various types of boating experiences as a critical part of the outstandingly 4	that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Baseline and Re-structured Document Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other RFFAs) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). Aquatic, Riparian and Temperature Analysis Evaluation of stream temperatures on the Colorado was performed for the FEIS and is included in Sections 4.6.2 and 5.2. Daily evaluation of stream

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	remarkable recreation value that has been identified for the Colorado River segments 4 through 6 below Kremmling. Other than a very general acknowledgement of the economic value associated with recreational activities in the study area, the DEIS does not provide an analysis of the economic value associated with fishing and boating activities that could be impacted by the proposed project. Specifically: • Fraser River – Public access to the Fraser River is limited, but the BLM has a public access trail that provides access on the Fraser River below Tabernash. In addition, the public is serviced through guide services that operate on private lands adjacent to the Fraser. No attempt is made to quantify the economic activity generated via guided fishing services or private trips to public access locations. • Colorado River between Hot Sulphur Springs and Kremmling – The CDOW and BLM access below the confluence of the Williams Fork and the Colorado Rivers provides excellent fishing opportunities and attracts both guided and non-guided anglers. Both the BLM and CDOW manage commercial outfitting permits for the section, so there is use data available. The BLM conducted a visitor preference survey that provides data that could be used to describe the economic value that fishing provides to the local/regional economy. The visitor preference survey also provides information regarding the personal, community, and environmental benefits desired and obtained from fishing these sections. • Colorado River below Kremmling – The description of recreation activities in this reach is confusing. For clarification, the reach immediately below the confluence of the Blue and Colorado rivers supports flat-water boating activities. Four miles below the confluence of the Colorado and Blue Rivers is the beginning of Gore Canyon, which is a Class V whitewater section. The section below Gore Canyon contains popular Class II-III sections. All visitor use numbers apply cited in the EIS apply to the river below Gore Canyon, and don't reflect the additional usage within Gore Canyon. The affected environment section should include a discussion of the economic contribution of river related recreation in this stream segment. **Impacts on Irrigation Structures and Irrigation Practices** - Irrigators along the Colorado River that have been given pumps to offset impacts by the Colorado Big-Thompson Project, including the BLM, are already experiencing operational problems due to low late summer flows. The irrigators have reported problems with not only being physically able to pump water, but also with algae clogging pumps due to warm stream temperatures. Additional streamflow reductions and groundwater level reductions associated with the proposed project and Full Use of Existing System Impact (2016) may increase these impacts. Irrigators, including the BLM, have also reported loss of and subsidence of sub-irrigated meadow habitat along the river, where the river recharges meadows. The BLM suggests including these issues in the existing environment discussion, and the ACE may want to consider mitigation measures to address these issues. **Congruence Between Data Tables and Text** – The BLM noted multiple locations in which flow rates and flow volumes in the text did not match numbers found in tables. In addition, there 5	temperature was not performed as there is only recent data that would be sufficient for developing a model. Additionally, evaluating historical effects of past diversions is not feasible due to very limited data available that consists of single samples on random days, with some years seeing many samples and other years having less than one per month and samples occurring at all times of the day. Historical data does indicate that temperature issues may not be a recent phenomenon with multiple data points greater than 20 degrees C since 1969 and temporally throughout the record. The Corps did not conduct IFIM analysis for the Colorado River due to limited data and a significant amount of effort over the large geographic scope of the Project area. More information has been added to FEIS Section 5.8 regarding the effects of changes in high flows (flows of greater than 2-year return interval) on wetlands and riparian areas. ***Comment #1708-12*** *(ID 2368)**:*** *Fisheries Analysis - BLM is concerned that results of IFIM analysis are used as the conclusive indicator of potential fisheries impacts. It is likely that fish populations will respond to a variety of factors that are tied to flow rates, not just habitat availability. Such factors include temperature regimes, macroinvertebrate populations, and disease. The fisheries analysis should include population trend data for the existing condition, information the BLM believes is readily available from the Colorado Division of Wildlife. Because the influence of further reduced flows is difficult to predict, the BLM suggests that the adopted mitigation plan contain an adaptive approach to managing the fishery resource.*

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	were multiple locations in which changes in flow rates noted for tributaries did not appear to create any changes in flow rates noted in tables for downstream locations. The BLM suggests a consistency review to resolve these minor issues, so that the lay reader isn't confused by the document. **Mitigation and Monitoring** – Given the lack of definitive data concerning resource status, resource trends, and thresholds beyond which resource conditions might significantly deteriorate, the BLM believes it is essential for monitoring, mitigation and management protocols to be established. With a monitoring program in place, adaptive management options, including alteration of project operations, could be implemented if significant downward trends in resource status are detected. Monitoring and mitigation is especially important because biological communities often do not immediately adjust and respond to changes in streamflows. The "current conditions" may not entirely reflect biological changes that will occur as a result of current streamflows. The BLM suggests that a component of the monitoring program could include periodic reports from Denver to the BLM, regarding Denver's operations that are designed to support or prevent harm to the ORVs. The BLM supports Denver Water plan to install and maintain of two real-time temperature monitoring stations as an applicant-committed mitigation measures. The results should be posted on multiple websites, so that the public can monitor changes in temperature. The BLM is also pleased that Denver Water is considering modification of operations to address acute temperature issues. However, BLM believes that foregoing proposed project diversions during August when high stream temperatures occur is likely to be insufficient to address temperature issues. To offset broader impacts associated with the Project, the ACE may want to consider mitigation designed to address historical stream temperature issues that are partially attributable to Denver Water's operations. Mitigation to address this issue may include modification of Denver Water's historical operations to provide increased flow during the short periods when acute temperature issues occur. The ACE may want to negotiate an operational stipulation with Denver Water, in the form of limits on diversion during certain flow conditions, to minimize impacts on the outstandingly remarkable values identified by the BLM for the river segments downstream from Kremmling. The BLM's rationale for this mitigation measure is that the DEIS noted that over long term periods, no changes in boatable days are expected, but that the number of boatable days could be reduced by up to 50 percent in certain years. The BLM believes that predictability of flow rates to support boating activities is an important part of the recreational ORV and that a significant amount of economic activity relies upon predictable flow rates. The BLM acknowledges that the recognition of Wild & Scenic Rivers values occurred long after Denver Water established the water rights that make diversions for this project possible. However, the project proponent may be willing to alter operations to minimize project impacts on the ORV as part of the mitigation measures designed to address new and cumulative impacts. 6	*If an adaptive approach is adopted, a variety of prescribed tools and mitigation can be brought to bear, in the event that the projected negligible impacts to fishery resources do not transpire.* **Response #1708-12:** As stated in the EIS, PHABSIM output was not the single conclusive factor but was used together with other relevant information in the evaluation of impacts. This other information included information on geomorphology, water quality, riparian vegetation, and hydrology. PHABSIM output is a useful, science-based tool in impact evaluation in EIS's and its use in the Moffat Project EIS is reasonable. All available information from CPW and other sources has been incorporated into FEIS Section 3.11 to characterize the existing conditions in the streams in the Project area. In some areas, this includes information from a number of years and trends have been identified in the FEIS. However, in other areas, long-term data at comparable sites do not exist and trends cannot be evaluated. The Corps is considering an appropriate adaptive management strategy for ongoing assessment of Project impacts and administration of mitigation. ***Comment #1708-9*** *(ID 2367)**:*** *The BLM notes that Denver Water plans to divert the greatest amount of water in wet years following dry year sequences (Page 4-5). The BLM requests that ACE analyze the impact on fisheries of increasing the frequency and duration of consecutive dry years, because consecutive dry years typically result in poor fish recruitment.*

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		Response #1708-9: Additional information was added to Chapters 4 and 5 of the FEIS on the increased frequency and duration of dry year conditions (FEIS Sections 4.6.1 and 5.1) and the associated effects on resources. Most of the additional diversions with the Project would occur in May, June, and July of wet and average years and there would be no additional diversions in dry years. Therefore, the additional diversions usually would not occur during the late summer period of low flows and highest water temperatures. This discussion has been incorporated into the evaluation of impacts for aquatic biological resources in FEIS Sections 4.6.11 and 5.11. However, as discussed in the FEIS, in some streams in Colorado and in the Project area, low flow years actually result in higher fish recruitment of young fish. ***Comment #1708-10*** *(ID 2366)**:*** *The BLM disagrees with one of the key assumptions of the fisheries impact analysis, described on pages 4-311 and 4-312. The BLM doesn't concur that extreme high flow or low flow events, which temporarily limit available physical habitat, are the primary driving factors in determining the size and health of fish populations. The text seems to suggest that changes in flow rates at times other than winter low flows and snowmelt runoff have minimal impact on fish populations. Changes in flow rates at other 'times of the year can have substantial impacts on foraging success, spawning success, recruitment success, and energy expended on competition with other fish. Ideally, a range of flows is needed to optimize aquatic system function, including flushing flows, channel maintenance flows, and seasonal high and low flows. The BLM believes this erroneous assumption should be removed from the text as a basis for saying that the proposed flow changes have negligible impacts. The BLM also disagrees*

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		with the assumption on page 4-313 which states that "as long as flushing flows are adequate to maintain substrate composition, invertebrates would have more favorable habitat availability with reductions in peak flows." First, this statement doesn't appear to be supported by any scientific research or literature citation. Second, observation of the Colorado River corridor indicates that the stream may be experiencing a problem with algal and fine sediment accumulations due to reduced flow rates. Third, larvae of invertebrates can suffer high mortality rates due to fine sediment accumulation. The DEIS discussion fails to acknowledge the critical benefits of flushing flows in removing fine sediments and algal accumulation. The BLM is also concerned that the DEIS portrays reduction in peak flows as a benefit to fishery populations, because more usable habitat is created. **Response #1708-10:** The assumption that reductions in high flows and increases in low flows can increase short-term habitat availability for aquatic populations, especially fish and macroinvertebrates, is based partly on PHABSIM relationships for most of the streams in the Project area and other streams in Colorado. The typical pattern is for greater habitat availability at intermediate flows and lower habitat availability at highest and lowest flows. Changes that bring flows closer to the intermediate flows in the range (reducing peak flows and increasing low flows) usually results in greater habitat availability. Therefore, this is incorporated into the impact analysis. This is also consistent with applications of PHABSIM and with observations of fish and invertebrate dynamics in streams that members of the Corps team have followed for decades. This discussion has been slightly modified in the FEIS to help clarify this issue. This assumption does not discount the importance of flows during other parts

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		of the year, which are also important for sustaining aquatic organisms. However, in many ecosystems including streams in Colorado, the extreme flow events appear to be more important in determining the size and health of fish populations. The discussion does not contradict the channel dynamics context of high flows, and the need for flows that maintain the channel. However, high flows can simultaneously have detrimental effects to populations while having beneficial effects to the channel. Channel maintenance, flushing flows, and sediment deposition are discussed in the FEIS Sections 3.3 and 5.4 and were taken into account and incorporated into the biological discussions and impact evaluation in both the DEIS (see page 4-307) and FEIS Section 4.6.11. The assumption in the DEIS that substrate in high gradient streams, such as the streams in the Project area, is more suitable for macroinvertebrates with effective flushing flows is reasonable and is the basis for much of the flushing flow discussions related to this Project and others. This assumption was retained in the FEIS. The assumption that lower peak flows can benefit macroinvertebrates is also reasonable and has been supported with literature citations in FEIS Section 4.6.11. ***Comment #1708-11*** *(ID 2365)**:*** *Stream Temperature Impacts on Fisheries - The BLM is very concerned about stream temperature issues in the segments of the Colorado River that are very close to violating regulatory standards. Specifically, the DEIS states: "all but one station experienced a DM or MWAT within 1 degree of the regulatory maximum, indicating that the river is very near regulatory standards. Changes in conditions, such as lower rainfall, higher temperatures, or lower stream flows could cause an exceedance of standards." (Page 3-41). The BLM is concerned that*

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		the likelihood of violations could increase if additional water is diverted from Williams Fork and Fraser River watersheds, and accordingly, we suggest a more intensive analysis of temperature issues, as described below. The BLM rationale for requesting more detailed temperature analysis is that the monthly analysis provided in the DEIS does not allow a more detailed analysis of the period in which the river typically experiences problems with high water temperature, typically during July and August. It is clear that stream temperatures are affected by conditions on antecedent days. If the river experiences extended length and frequency of low flow periods as a result of the project, temperatures could rise significantly beyond the increase calculated in a monthly analysis. Typically, temperature impacts on fisheries are assessed for increases in both acute temperatures and average weekly temperatures. The BLM suggests that the EIS include a daily flow analysis of the annual period of July 15 through August 15, so that the reader can identify how much more frequently the low flow conditions that cause temperature concerns will occur. This daily analysis could be included in both the direct and cumulative impact sections. The BLM also suggests including a discussion of the impact of extended low flow and high temperature periods on the recruitment success, angling mortality and disease resistance for trout species. If these analyses reveal fish population impacts from temperatures, we also suggest a discussion on the resulting indirect impacts to recreational fishing opportunities. **Response #1708-11:** Most of the additional diversions with the Project would occur in May, June, and July of wet and average years, as discussed in FEIS Sections 4.6.1 and 5.1. There would be no additional diversions in dry years. Therefore, the additional diversions

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		usually would not occur during the late summer period of highest water temperatures, which is usually in mid to late August, a period when there would be little or no additional diversions. In late summer of dry years, when the most severe temperatures occur, there would be no additional diversions. The Corps evaluated the number of days where daily flow change in July and August may be significant enough to impact stream temperature. This analysis was performed for specified locations in the Fraser River Basin and on the Colorado River below Windy Gap. The results are only a measure of the days, not an estimate of the actual change in stream temperature and are disclosed in FEIS Section 5.2. FEIS Sections 3.11, 4.6.11, and 5.11 have been updated to include revised discussions of these issues including low flows, water temperatures, and angler mortality in summer. PACSM of flows and water temperatures was not evaluated for temperature on a daily basis for the FEIS because there would not be changes in flow with the Project during the period of highest water temperatures. However, historical daily flows and temperature data was evaluated at four sites in the Fraser and Colorado rivers to analyze the strength of the correlation between flow and stream temperature, and air temperature and stream temperature. In short, our conclusion is that air temperature has a stronger correlation to stream temperature. The Corps also ran MWAT and daily maximum statistics on historical data at specified locations to compare with the GCSMP and Section 303(d) listings. ***Comment #1708-6*** *(ID 2364)**:*** *Channel Maintenance Flows - While the proposed changes to the river hydrograph may not affect overall stream morphology because of limited sediment supply, the BLM believes there may be a*

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		potential for significant impacts related to the interaction between fine sediments and algal growth. In other river systems in Colorado, the BLM has experienced situations in which the stream channel becomes "cemented" when algal growth and fine sediments are not washed out by high flow events. This "cementing" appears to increase when stream temperatures increase and when flood frequency decreases, as would be expected from the proposed action. This "cementing" drastically reduces the interstitial spaces available for fish spawning and drastically reduces the surfaces available for macroinvertebrate habitat. The BLM suggests analysis and discussion of this potential impact, and the Army Corps may want to consider mitigation measures for preventing this impact. As part of this analysis, the BLM recommends specific disclosure of the reduction in the number of years in which "wet" year hydrology will occur, and conclusions about whether any reduction in "wet" years will result in impacts to fine sediments and algal growth. **Response #1708-6:** Additional information of algal growth in the Fraser River Basin and along the Colorado River was included in FEIS Section 3.2. High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While stream flows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a

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		wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the ROW agreements with the USFS.

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		FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources.

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		The analysis of stream morphology was expanded to include a Phase 2 sediment transport evaluation. As part of this assessment, flows required to mobilize different particle sizes were quantified and the flow at which stream bed mobilization occurs was estimated. Results of this analysis were incorporated into an evaluation to quantify the duration, frequency and magnitude of flows exceeding the Phase 2 sediment transport threshold as well as changes to other high magnitude flood events. Changes resulting from the proposed Project were quantified. Results are provided in FEIS Sections 4.6.3 and 5.3. This evaluation does not include an assessment of pre-diversion conditions. ***Comment #1708-8*** *(ID 2363)**:*** *Riparian Analysis - The riparian/wetland impact analysis appears to be incomplete, because it focuses only on changes to groundwater levels and to areas inundated by two-year flood events, which are only two factors controlling riparian community extent, composition, and vigor. The analysis should also examine the duration and frequency of flow events that influence the floodplain, but are of less or greater magnitude than 2 year flood events. If flood events that inundate areas between the edge of the channel and the edge of the floodplain are reduced in frequency and duration, the BLM would expect measurable changes in the extent, composition, recruitment success and vigor of the riparian community, because many riparian species are sensitive to the number of days within the growing season that their roots are inundated. Reduction of peak flows during wet years may further impair the remaining cottonwood communities along the Colorado River. Dramatic reductions in flow when additional project, diversions occur may reduce reproductive success of cottonwood trees, which rely on slow, gradual reductions of flows after cottonwood seedlings are*

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		established on sand and gravel bars in the river channel. **Response #1708-8:** More information has been added to FEIS Section 5.8.1.2 regarding the effects of changes in high flows (flows of greater than 2-year return interval) on wetlands and riparian areas, including recruitment of cottonwoods. ***Comment #1708-5*** *(ID 2362)**:*** *Finally, an analysis of impacts on floodplain functionality is needed to meet the obligation of federal agencies under the Floodplain Executive Order. The BLM notes that in several locations where channel assessments were performed, signs of potential channel aggradation were observed.* **Response #1708-5:** The Presidential Executive Order 11988 states: “The term ‘floodplain’ shall mean the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.” Because annual peak flows do not change for the wettest years of the study period, the 100-year floodplain would not change. Furthermore, there would be no Project activity in the floodplain. ***Comment #1708-1*** *(ID 2361)**:*** *Wild & Scenic River Segment Descriptions - We would be happy to, discuss the BLM's approach to Wild and Scenic Rivers Criteria. Section 3.13 contains some omissions and errors regarding descriptions of segments determined as "eligible" as part of the BLM's planning process. First the section should note that "c1assification" is a description of the current level of development along a river corridor, so that the reader doesn't confuse classification determinations (wild, scenic, or*

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		recreational) with outstandingly remarkable values (ORVs), which can also bear the labels of scenic or recreational. Second, the Wild and Scenic Rivers Act does not constrain potential outstandingly remarkable values to the values listed in the text. The values listed in the text are only possible examples of outstandingly remarkable values. The document provides insufficient detail concerning the potentially affected eligible segments to assure the reader that the ACE has considered impacts to these segments. The BLM recommends inclusion of a table showing Colorado River segments 1. through 6, upstream/downstream terminus for each segment, classification for each segment, and outstandingly remarkable values for each segment. The BLM also recommends inclusion of a map so that the reader can easily locate each of these segments. This information is readily available on the BLM website for the Kremmling Field Office. The description of Wild & Scenic Rivers Analysis for the Blue River is confusing, because it states that segments have been classified as recreational and wild, which is not possible. Segments must be placed in either one of these classifications, but not both. The BLM also recommends a table for this section that shows location, classification, and ORVs for each segment. Since the time when the BLM's eligibility report was published, the BLM has determined that Blue River Segment 1 is not eligible, because of errors in the land ownership that were incorporated as part of the original analysis. **Response #1708-1:** The Corps appreciates the BLM's input on the Wild and Scenic River designation process throughout the NEPA process for the Moffat Collection System EIS. The resources recognized by the BLM as being eligible under the Wild and Scenic Rivers Eligibility study are similarly considered in the Corps' impact analysis and permitting decision. The most recent and updated version of the Upper Colorado River Wild and Scenic Stakeholder Group Management

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		Plan, dated January 2012, was reviewed and included as a consulted resource in the FEIS. In 2006, the Kremmling and Glenwood Springs Field Offices of the BLM began the eligibility phase of a Wild and Scenic Rivers evaluation as part of their Resource Management Plan (RMP) revision process. The Wild and Scenic Rivers study process is composed of two main components: the eligibility phase and the suitability phase. The eligibility phase involves identifying eligible rivers and stream segments, and determining a tentative classification (Wild, Scenic, or Recreational). To be eligible for designation, a river must be free flowing and contain at least one ORV that is scenic, recreational, geological, fish-related, wildlife-related, historic, cultural, botanical, hydrological, paleontological, or scientific. Upon conclusion of the eligibility phase, the BLM prepared a Wild and Scenic Eligibility Report that identified five river segments within the Moffat Collection System Project EIS study area (portions of the Colorado and the Blue rivers) that were eligible for inclusion in the NWSRS (BLM 2007). The Wild and Scenic Suitability Report followed in April 2010. In the report, the BLM states: “The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the NWSRS by considering tradeoffs between corridor development and river protection.” Those segments of the Colorado River between Kremmling and Glenwood Springs were determined to be eligible. The Kremmling and Glenwood Springs field offices of the BLM addressed this issue in separate Draft RMPs/EISs that were released in 2011. The preferred alternative in both RMPs includes a determination that much of the Colorado River between Kremmling and Glenwood Springs is suitable for inclusion in the Wild and Scenic Rivers

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		Act. A variation of the preferred alternative in both field offices would defer designation by adopting and implementing the Stakeholder Group Management Plan. If monitoring indicates that the Management Plan was not providing an adequate level of protection, BLM would initiate a process to evaluate suitability at a future date. ***Comment #1708-13*** *(ID 2360)**:*** *Recreation Impacts - The document correctly identifies the range of boatable flows on the Colorado River. However, the document should also acknowledge that different flow rates within that range provides different types of boating experiences. The BLM considers maintenance of the various types of boating experiences as a critical part of the outstandingly remarkable recreation value that has been identified for the Colorado River segments 4 through 6 below Kremmling.* **Response #1708-13:** The most current information available at the time of the DEIS analysis was used in identifying minimum and optimum flows. In the DEIS, the days for minimum and optimum flows were determined from several sources including the UPCO study, American Whitewater, and personal interviews with commercial raft guides and private kayakers. The analysis examined daily flows over the course of the full 45 years of record. This same analysis was repeated in FEIS Section 5.15.1.2 but was revised to compare Current Conditions (2006) to Full Use with a Project Alternative (2032) using daily flows over the full 45 years of record. The most recent and updated version of the Upper Colorado River Wild and Scenic Stakeholder Group Management Plan, dated January 2012, was reviewed and included as a consulted resource in the FEIS.

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		In 2006, the Kremmling and Glenwood Springs field offices of the BLM began the eligibility phase of a Wild and Scenic Rivers evaluation as part of their RMP revision process. The Wild and Scenic Rivers study process is composed of two main components: the eligibility phase and the suitability phase. The eligibility phase involves identifying eligible rivers and stream segments, and determining a tentative classification (i.e., Scenic, or Recreational). To be eligible for designation, a river must be free flowing and contain at least one ORV that is scenic, recreational, geological, fish-related, wildlife-related, historic, cultural, botanical, hydrological, paleontological, or scientific. Upon conclusion of the eligibility phase, BLM prepared a Wild and Scenic Eligibility Report that identified five river segments within the Moffat Collection System Project EIS study area (portions of the Colorado and the Blue rivers) that were eligible for inclusion in the NWSRS (BLM 2007). The Wild and Scenic Suitability Report followed in April 2010. In the report, BLM states: “The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the NWSRS by considering tradeoffs between corridor development and river protection.” Those segments of the Colorado River between Kremmling and Glenwood Springs were determined to be eligible. The Kremmling and Glenwood Springs field offices of the BLM addressed this issue in separate Draft RMPs/EISs that were released in 2011. The preferred alternative in both RMPs includes a determination that much of the Colorado River between Kremmling and Glenwood Springs is suitable for inclusion in the Wild and Scenic Rivers Act. A variation of the preferred alternative in both field offices would defer designation by adopting and implementing the Stakeholder Group Management Plan. If monitoring indicates that the Stakeholder

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		Group Management Plan was not providing an adequate level of protection, BLM would initiate a process to evaluate suitability at a future date. The recreation analysis in the EIS did evaluate effects of the Project alternatives on the Colorado River below Kremmling (see DEIS Section 4.13.1.2). The Corps coordinated with the BLM regarding the Wild and Scenic River designation process throughout the NEPA process. However, the Corps does not use its authorities to protect those segments under the BLM study for determination in a greater capacity than it does all waterways under its jurisdiction. The Corps' direct and cumulative impact analysis shows that minor impacts would result from implementation of the action alternatives. These results were then interpreted to find that the alternatives would likely not affect the suitability of the eligible segments for inclusion in the NWSRS. This conclusion was added to the FEIS. Sections of the Colorado and Blue rivers within the Project area considered eligible for Wild and Scenic Rivers designation were described in DEIS Section 3.13.5 and FEIS Section 3.15.5. ***Comment #1708-14*** *(ID 2359)**:*** *Other than a very general acknowledgement of the economic value associated with recreational activities in the study area, the DEIS does not provide an analysis of the economic value associated with fishing and boating activities that could be impacted by the proposed project. Specifically: • Fraser River - Public access to the Fraser River is limited, but the BLM has a public access trail that provides access on the Fraser River below Tabernash. In addition, the public is serviced through guide services that operate on private lands adjacent to the Fraser. No attempt is made to quantify the economic activity generated via guided*

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		fishing services or private trips to public access locations. • Colorado River between Hot Sulphur Springs and Kremmling - The CDOW and BLM access below the confluence of the Williams Fork and the Colorado Rivers provides excellent fishing opportunities and attracts both guided and non-guided anglers. Both the BLM and CDOW manage commercial outfitting permits for the section, so there is use data available. The BLM conducted a visitor preference survey that provides data that could be used to describe the economic value that fishing provides to the local/regional economy. The visitor preference survey also provides information regarding the personal, community, and environmental benefits desired and obtained from fishing these sections. • Colorado River below Kremmling - The description of recreation activities in this reach is confusing. For clarification, the reach immediately below the confluence of the Blue and Colorado rivers supports flat-water boating activities. Four miles below the confluence of the Colorado and Blue Rivers is the beginning of Gore Canyon, which is a Class V whitewater section. The section below Gore Canyon contains popular Class II- 111 sections. All visitor use numbers apply cited in the EIS apply to the river below Gore Canyon, and don't reflect the additional usage w i t h Gore Canyon. The affected environment section should include a discussion of the economic contribution of river related recreation in this stream segment. **Response #1708-14:** Impacts to the quality of the fishing experience primarily depend on the quality and health of the fisheries, which is addressed in DEIS Section 4.9.1, Aquatic Biological Resources. At most locations, the analysis of aquatic resources concluded that impacts to the health of the fishery would be minor or negligible. Therefore, impacts to the recreational experience would also be minor. The revised FEIS

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		Aquatic Biological Resources section has been reviewed and conclusions regarding the health of the fisheries, including the quality of fish, were considered for consistency in revisions to FEIS Section 5.15.1.2. Economic value of resources incorporates matters outside the scope of NEPA 404 permit guidelines. The recreational and economic activity generated from recreation is relevant and are addressed separately in the FEIS. The socioeconomic impacts in Grand County are driven in part by the conclusions about impacts upon other resources (recreation, visual resources, surface water, etc.) and the resulting impacts upon overall tourism and economic activities that occur in the county. The analysis of socioeconomic impacts to Grand County was reviewed and expanded as appropriate in FEIS Section 5.19 to revise or support the socioeconomic conclusions. ***Comment #1708-4*** *(ID 2358)**:*** *Impacts on Irrigation Structures and Irrigation Practices - Irrigators along the Colorado River that have been given pumps to offset -impacts by the Colorado Big-Thompson Project, including the BLM, are already experiencing operational problems due to low late summer flows. The irrigators have reported problems with not only being physically able to pump water, but also with algae clogging pumps due to warm stream temperatures. Additional streamflow reductions and groundwater level reductions associated with the proposed project and Full Use of Existing System Impact (2016) may increase these impacts. Irrigators, including the BLM, have also reported loss of and subsidence of sub-irrigated meadow habitat along the river, where the river recharges meadows. The BLM suggests including these issues in the existing environment discussion, and the ACE may want to consider mitigation measures to address these issues.*

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		Response #1708-4: Current impacts on irrigation structures and irrigation practices caused by low-flow conditions during the late summer and in dry years are partially due to diversions by the existing Moffat Collection System as well as other upstream diversions including Windy Gap and C-BT Project diversions. The proposed Moffat Project would have little to no impact on flows during the late summer and in dry years; therefore, impacts on irrigation structures and practices would not be exacerbated by the proposed Project. The proposed Project would not cause additional flow reductions during those times since there would be no additional diversions attributable to the Moffat Project in late summer months or in dry years because Denver Water would have already diverted the maximum amount physically and legally available under its existing water rights without additional storage on-line. DEIS Table H-3.1 shows additional diversions through the Moffat Tunnel would occur primarily during the months of May, June and July in average and wet years. During other months, there would be little to no additional water diverted. Furthermore, Denver Water's out-of-priority diversions from the Fraser River Basin would be replaced with releases from Williams Fork Reservoir, resulting in no net change in Colorado River flows upstream of those pumps due to out-of-priority Moffat Collection System diversions in dry years. In summary, there would be little to no impact on the Meadow Pumper's ability to pump due to the proposed Moffat Project. Additional diversions attributable to the proposed Moffat Project were evaluated and the associated environmental effects were generally determined to be minimal to moderate depending on the resource. Denver Water's Conceptual Mitigation Plan is included in FEIS Appendix M. Where required, mitigation will be prepared as part of a Section 404 Permit. Denver Water is not responsible for mitigating for the effects of other RFFAs since they

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		are not caused by the Moffat Project. Information was added to FEIS Chapters 3, 4, and 5 regarding irrigation structures and practices and sub-irrigated meadow habitat along the Colorado River. ***Comment #1708-3*** *(ID 2357)**:*** *Congruence Between Data Tables and Text - The BLM noted multiple locations in which flow rates and flow volumes in the text did not match numbers found in tables. In addition, there were multiple locations in which changes in flow rates noted for tributaries did not appear to create any changes in flow rates noted in tables for downstream locations. The BLM suggests a consistency review to resolve these minor issues, so that the lay reader isn't confused by the document.* **Response #1708-3:** A consistency review was conducted for the FEIS to confirm flow rates in the text coincide with numbers presented in the tables. ***Comment #1708-18*** *(ID 2356)**:*** *Mitigation and Monitoring - Given the lack of definitive data concerning resource status, resource trends, and thresholds beyond which resource conditions might significantly deteriorate, the BLM believes it is essential for monitoring, mitigation and management protocols to be established. With a monitoring program in place, adaptive management options, including alteration of project operations, could be implemented if significant downward trends in resource status are detected. Monitoring and mitigation is especially important because biological communities often do not immediately adjust and respond to changes in streamflows. The "current conditions" may not entirely reflect biological changes that will occur as a result of current streamflows. The BLM suggests that a component of the monitoring program could include periodic reports from Denver to the BLM, regarding Denver's*

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		operations that are designed to support or prevent harm to the ORVs. **Response #1708-18:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA and the Corps' CWA Section 404 regulations. Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Comment #1708-17*** *(ID 2355)**:*** *The BLM supports Denver Water plan to install and maintain of two real-time temperature monitoring stations as an applicant-committed mitigation measures. The results should be posted on multiple websites, so that the public can monitor changes in temperature. The BLM is also pleased that Denver Water is considering modification of operations to address acute temperature issues. However, BLM believes that foregoing proposed project diversions during August when high stream temperatures occur is likely to be insufficient to address temperature issues. To offset broader impacts associated with the Project, the ACE may want to consider mitigation designed to address historical stream temperature issues that are partially attributable to Denver Water's operations. Mitigation to address this issue may include modification of Denver Water's historical operations to provide increased flow during the short periods when acute temperature issues occur.* **Response #1708-17:** The Project applicant is not required to provide mitigation for impacts currently existing in the Colorado River Basin. A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see

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		Sections 4.6.2 and 5.2). In addition to monitoring stream temperatures, Denver Water has proposed to bypass additional water when stream temperatures reach a certain level. FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. ***Comment #1708-16*** *(ID 2354)**:*** *The ACE may want to negotiate an operational stipulation with Denver Water, in the form of limits on diversion during certain flow conditions, to minimize impacts on the outstandingly remarkable values identified by the BLM for the river segments downstream from Kremmling. The BLM's rationale for this mitigation measure is that the DEIS noted that over long term periods, no changes in boatable days are expected, but that the number of boatable days could be reduced by up to 50 percent in certain years. The BLM believes that predictability of flow rates to support boating activities is an important part of the recreational ORV and that a significant amount of economic activity relies upon predictable flow rates. The BLM acknowledges that the recognition of Wild & Scenic Rivers values occurred long after Denver Water established the water rights that make diversions for this project possible. However, the project proponent may be willing to alter operations to minimize project impacts on the ORV as part of the mitigation measures designed to address new and cumulative impacts.* **Response #1708-16:** Denver Water is a stakeholder in the Wild and Scenic Rivers Alternative Management Plan.

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Comment #1746 Ed Perlmutter, Member of Congress Congress of the United States, House of Representatives 12600 West Colfax Avenue, Suite B-400 Lakewood, CO 80215	ED PERLMUTTER 7TH DISTRICT, COLORADO WASHINGTON OFFICE: 415 CANNON HOUSE OFFICE BUILDING WASHINGTON, DC 20515 PHONE: (202) 225-2645 FAX: (202) 225-5278 DISTRICT OFFICE: 12600 WEST COLFAX AVENUE SUITE B-400 LAKEWOOD, CO 80215 PHONE: (303) 274-7944 FAX: (303) 274-6495 www.perlmutter.house.gov COMMITTEES: FINANCIAL SERVICES CAPITAL MARKETS, INSURANCE AND GOVERNMENT SPONSORED ENTERPRISES (GSEs) FINANCIAL INSTITUTIONS AND CONSUMER CREDIT RULES Congress of the United States House of Representatives March 23, 2010 RECEIVED APR 2010 Mr. Scott Franklin Moffat EIS Project Manager US Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, Colorado 80128 Dear Mr. Franklin: I represent Colorado's 7th Congressional District in the U.S. Congress. This district includes much of the western, northwestern and northern suburbs of Denver. I am writing today to add my name to a growing list of municipalities, community organizations, water providers and others in support of Denver Water's proposed expansion of its northern Moffat Collection System. As a Member of Congress whose district is impacted by this important project, I ask that my comments be included in the official EIS record and that the Army Corps of Engineers give them due consideration. Approximately 280,000, or nearly 37 percent, of my constituents receive their water from Denver Water or through local distributors who are supplied by Denver Water. This project represents a powerful step toward to ensuring a secure, reliable water supply for their families, businesses and overall quality of life. The Moffat project is needed to address three significant challenges facing Denver Water. • Supply: Denver Water will begin experiencing a water supply shortfall in the middle part of this decade that is expected to grow to 34,000 acre-feet by the year 2030. Rather than developing new supply to meet that need, Denver Water has pledged to strengthen their conservation efforts. Many of these efforts have already proven remarkably effective and have made up for nearly half of this supply shortfall. These critical conservation efforts cannot meet all of this need, however. The expansion of Gross Reservoir is projected to supply the remaining 18,000 acre-feet, closing Denver Water's projected supply gap. • Reliability: The second challenge is a serious imbalance in its system. Currently, only 20 percent of Denver Water's supply comes into the northern Moffat Collection System, with the remaining 80 percent coming through its southern system. Because of this, the PRINTED ON RECYCLED PAPER	***Comment #1746-1*** *(ID 2671)**:*** *I represent Colorado's 7th Congressional District in the U.S. Congress. This district includes much of the western, northwestern and northern suburbs of Denver. I am writing today to add my name to a growing list of municipalities, community organizations, water providers and others in support of Denver Water's proposed expansion of its northern Moffat Collection System. As a member of Congress whose district is impacted by this important project, I ask that my comments be included in the official EIS record and that the Army Corps of Engineers give them due consideration. Approximately 280,000, or nearly 37 percent, of my constituents receive their water from Denver Water or through local distributors who are supplied by Denver Water. This project represents a powerful step toward to ensuring a secure, reliable water supply for their families, businesses and overall quality of life. The Moffat project is needed to address three significant challenges facing Denver Water. Supply: Denver Water will begin experiencing a water supply shortfall in the middle part of this decade that is expected to grow to 34,000 acre-feet by the year 2030. Rather than developing new supply to meet that need, Denver Water has pledged to strengthen their conservation efforts. Many of these efforts have already proven remarkably effective and have made up for nearly half of this supply shortfall. These critical conservation efforts cannot meet all of this need, however. The expansion of Gross Reservoir is projected to supply the remaining 18,000 acre-feet, closing Denver Water's projected supply gap. Reliability: The second challenge is a serious imbalance in its system. Currently, only 20 percent of Denver Water's supply comes into the northern Moffat Collection System, with the remaining 80 percent coming through its southern system. Because of this, the northern system is left*

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	northern system is left particularly vulnerable to drought. During the 2002 drought, in fact, the lack of water available in the northern system nearly shut it down. If it weren't for the creative leadership provided by municipalities and local water providers, hundreds of thousands of area residents would have been without water. I support any reasonable effort to ensure the continuous supply of water in times of drought. Risking the alternative is simply unacceptable. • Vulnerability: The current system imbalance not only puts the northern system at risk, it is also threatening to the southern system, thereby representing a significant threat to all of Denver Water's 1.3 million customers. 80 percent of the water comes from south of Denver. Significant natural disasters like 2002's Hayman Fire, mechanical failure, or other problems that could impact the operation of the southern system would put these customers at risk. The northern system is simply not sufficient to serve as a back-up. The enlargement of Gross Reservoir is the best solution to address many of these problems. The residents of Colorado's 7th Congressional district and all of Denver Water's customers deserve a secure water future. Denver Water's Moffat project is an important step to achieving that future. Sincerely, Ed Perlmutter Member of Congress	*particularly vulnerable to drought. During the 2002 drought, in fact, the lack of water available in the northern system nearly shut it down. If it weren't for the creative leadership provided by municipalities and local water providers, hundreds of thousands of area residents would have been without water. I support any reasonable effort to ensure the continuous supply of water in times of drought. Risking the alternative is simply unacceptable. Vulnerability: The current system imbalance not only puts the northern system at risk, it is also threatening to the southern system, thereby representing a significant threat to all of Denver Water's 1.3 million customers. 80 percent of the water comes from south of Denver. Significant natural disasters like 2002's Hayman Fire, mechanical failure, or other problems that could impact the operation of the southern system would put these customers at risk. The northern system is simply not sufficient to serve as a back-up. The enlargement of Gross Reservoir is the best solution to address many of these problems. The residents of Colorado's 7th Congressional district and all of Denver Water's customers deserve a secure water future. Denver Water's Moffat project is an important step to achieving that future.* **Response #1746-1:** The Corps notes the support of the Moffat Project. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Grand County Board of Realtors #1 Form Letters

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
GRAND COUNTY BOARD OF REALTORS #1 FORM LETTER — STANDARD		
[The Grand County Board of Realtors #1 Standard Form Letter shown here on pages 1 and 2 was submitted by all the commenters listed below.] Comment #614 Art -- Comment #778 Stuart S. Huster and Jill Tallal Comment #1162 Frank Appelhans Comment #1270 Shanna Lalley, [redacted] Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446	GCBOR Grand County Board of Realtors, Inc. P.O. Box 466 - Granby, CO - 80446 Ph. 970-887-9538 - Fax 970-887-9517 Scott Franklin, Moffat EIS Project Manager US Army Corps of Engineers, Omaha District Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 moffat.eis@usace.army.mil Fax: 303-979-0602 Moffat DEIS Comments from the Grand County Board of Realtors, Granby, Colorado Dear Mr. Franklin, We are writing to share with you our deep concerns for the proposed Denver Water Department Moffat Collection System Project (Moffat Project) as described in the Draft Environmental Impact Statement (DEIS) dated 30Oct09. We understand the project would involve trans-mountain diversion of an additional 18,000 acre feet of water from our West Slope watershed. This is in addition to approximately 60% of our stream flows presently diverted. The Grand County Board of Realtors represents our local real estate industry including brokers, appraisers, legal professionals, and many landowners, all of whom would be materially affected by the Moffat Project. Real estate values in Grand County are primarily driven by our natural resource values including rivers and streams, riparian corridors, and irrigated ranch lands. The proposed Moffat Project diversions would affect thousands of acres of real estate, depleting our natural heritage and unfairly impact real estate values. **DEIS Fatally Flawed** The DEIS is fatally flawed in several ways: • Purpose and need – the DEIS practically ignores water rights and the "Firming" process and moves directly in their narrow range of alternatives. We are told the project aims to "firm Denver's conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners. How can we possibly do our job representing landowners if this critical water rights information is withheld from us? • Alternatives – the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required	***Form Letter Comment #1744-1*** *(ID 4428)**:*** *We are writing to share with you our deep concerns for the proposed Denver Water Department Moffat Collection System Project (Moffat Project) as described in the Draft Environmental Impact Statement (DEIS) dated 300ct09. We understand the project would involve trans-mountain diversion of an additional 18,000 acre foot of water from our West Slope watershed. This is in addition to approximately 60% of our stream flows presently diverted.* **Response #1744-1:** Draft Environmental Impact Statement (DEIS) Table 3.1-10 summarized the effects of historical Moffat Collection System diversions on native flow at the Fraser River at Winter Park gage. On average, the Board of Water Commissioners (Denver Water) diverted approximately 50 percent (%) of the average annual native flow at the Fraser River at Winter Park gage for the 30-year period from 1975 through 2004. The percentage of native flow diverted by Denver Water depends on the location in the basin. Denver Water would divert over 90% of the native flow with the Moffat Collection System Project (Moffat Project or Project) on-line from some small tributaries that do not have bypass flow requirements. Denver Water would divert about 76% of the native flow at the Winter Park gage with the Moffat Project on-line. At the Granby gage located near the mouth of the Fraser River, Denver Water's average annual Moffat Collection System diversions represent approximately 41% of the native flow. Tables showing the percentage of native flow diverted by Denver Water under Current Conditions (2006), Full Use of the Existing System, and Full Use with a Project Alternative (2032) flow were added to Final Environmental Impact Statement (FEIS) Appendix H.

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1274 Loyal Steube, Director; Annie Ginsberg, President Elect; Carrie George, Director; Debra Brynoff, Executive Officer; Monica Anderson, Secretary Treasurer; Rebecca Brosh, Past President; and Suzi Maki, President Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446 Comment #1775 Elisa Voxland, Member Grand County Board of Realtors, Inc. P.O. Box 2866 Frisco, CO 80443	under NEPA. Cities in California are conserving 50% or more of their water and San Francisco Bay Area utilities have targeted conservation of 1,000,000 acre feet to meet their long term needs. Denver's conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions. • Affected Environment – The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are pipelines of PVC and concrete, not complex hydrologic ecosystems with abundant resource values. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 – Ground Water and Surface Water, A single Resource, dated 1998). How can we understand the project effects on our ranch lands and riparian resources without an honest hydrologic evaluation. • Consequences – The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. This NEPA omission makes all analyses in the DEIS flawed. How can we know how the Moffat Project would affect our land values, fisheries, ranch operations, or recreational opportunities? How would the diversions affect local water and wastewater infrastructure that is so critical to our health and safety? • Local Socioeconomic Impacts – The Moffat Project would clearly reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic effects on our already stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. Our Grand County Board of Realtors fears that Moffat depletions of our aquatic resources will significantly reduce our natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well being. Struggling through this economic recession, we have already taken serious hits over the last two years. Our constituents fear that further impacts to our streams and riparian ranch lands have significant impacts upon our local economy, a final blow that may be fatal to our community. Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will clarify the actual impacts and	The water supply to meet an additional 18,000 acre-feet (AF) of new firm yield would come from the Fraser River, Williams Fork River, Blue River, South Platte River and South Boulder Creek. Average annual additional diversions under the Proposed Action compared to Full Use of the Existing System would be as follows: • Williams Fork River: 1,900 acre-feet per year (AF/yr) (Gumlick Tunnel) • Fraser River Basin: 8,400 AF/yr (Fraser River diversion through Moffat Tunnel) • Blue River Basin: 4,800 AF/yr (Roberts Tunnel) • South Platte River Basin: 2,400 AF/yr (direct diversions and exchanges to Conduit 20) • South Boulder Creek: 1,200 AF/yr **Total: 18,700 AF/yr** Total additional diversions under the Proposed Action would exceed 18,000 AF/yr due to miscellaneous losses in Denver Water's System including conveyance and evaporation. ***Form Letter Comment #1744-0*** *(ID 4427)**:*** *The Grand County Board of Realtors represents our local real estate industry including brokers, appraisers, legal professionals, and many landowners, all of whom would be materially affected by the Moffat Project. Real estate values in Grand County are primarily driven by our natural resource values including rivers and streams, riparian corridors, and irrigated ranch lands. The proposed Moffat Project diversions would affect thousands of acres of real estate, depleting our natural heritage and unfairly impact real estate values.*

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
	require vastly increased mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion. The US Army Corps of Engineers should deny the Moffat Firming Project and the Bureau of Reclamation should deny the Windy Gap Firming project as proposed. If they are to proceed, the DEIS documents should be re-written based upon sound science and real effects to natural resources in Grand County and other West Slope counties, including real estate values. Thank you for your concern, *Jean K. Wolter* Member of the Grand County Board of Realtors	**Response #1744-0:** The socioeconomic impact analysis takes into account the conclusions about impacts to a number of other resources, including surface water, recreation, visual resources, aquatic biological resources and others. The evaluation of socioeconomic impacts to Grand County incorporates these conclusions in considering the impacts on tourism and related economic sectors. The analysis of socioeconomic impacts to Grand County was reviewed and expanded as appropriate in FEIS Section 5.19. ***Form Letter Comment #1744-3*** *(ID 4426)**:*** *DEIS Fatally Flawed* *The DEIS is fatally flawed in several ways: Purpose and need - the DEIS practically ignores water rights and the "Firming" process and moves directly in their narrow range of alternatives. We are told the project aims to "firm Denver's conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners. How can we possibly do our job representing landowners if this critical water rights information is withheld from us?* **Response #1744-3:** The U.S. Army Corps of Engineers (Corps) relies on administration and enforcement of the State water laws to ensure downstream senior rights are protected. A Section 404 Permit would not impose conditions on the operation of the Project that are within the jurisdiction of Colorado Water Law. The Corps defers to the State to resolve water law issues. The Corps' analysis for the DEIS is based on diversions under Denver Water's existing decrees. When evaluating a permit application, the Corps' regulations provide: "The dispute over property

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		ownership would not be a factor in the Corps public interest decision." 33 Code of Federal Regulations (CFR) Part 320.4(g). Whether water rights or other property rights need to be obtained, utilized, expanded, or managed differently in order to fulfill the basic purpose of the Proposed Action does not preclude the Corps from permitting an otherwise practicable alternative (40 CFR Part 230.10). The Corps may issue a Section 404 Permit even if other Federal, State or local authorizations have not been obtained before the Applicant has applied for a permit. ***Form Letter Comment #1744-4*** *(ID 4425)**:*** *Alternatives - the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required under NEPA. Cities in California are conserving 50% or more of their water and San Francisco Bay Area utilities have targeted conservation of 1,000,000 acre feet to meet their long term needs. Denver's conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions.* **Response #1744-4:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. Water conservation is part of the solution for water supply projects. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and

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		raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Form Letter Comment #1744-5*** *(ID 4424)**:*** *Affected Environment - The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are pipelines of PVC and concrete, not complex hydrologic ecosystems with abundant resource values. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 - Ground Water and Surface Water, A single Resource, dated 1998). How can we understand the project effects on our ranch lands and riparian resources without an honest hydrologic evaluation.* **Response #1744-5:** In DEIS Section 3.1, changes in average annual flows were presented as a volume (in AF) whereas

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		changes in average monthly flows were presented as a rate (in cubic feet per second). The hydrology presented does not assume waterways are lined with polyvinyl chloride or concrete. The interaction between shallow riparian groundwater and surface water was considered and explained in the groundwater resource sections in DEIS Sections 3.4, 4.6.4 and 5.4. Surface water and groundwater are linked components of the hydrologic system in every watershed. Depending on the elevation of water levels in streams compared to the adjacent groundwater levels, water would flow between surface water bodies, streams, and aquifers. Thus, changes in surface water levels and flows may affect groundwater. The proposed diversions are expected to have minor direct impacts on groundwater, which would be limited to the local areas of the existing diversion structures. Extending the duration of the flow diversions would cause a minor increase in the amount of groundwater recharge directly beneath the unlined portions of the diversion structures and conveyance canals, which may cause minor increases in groundwater levels in those areas during the period of the extended flow diversion. Localized minor increases in recharge rates and groundwater levels would cause negligible impacts to groundwater resources and the ecosystem. Increasing groundwater recharge rates beneath the diversion and conveyance structures would partly offset the minor reductions in recharge that could result from stream flow reductions in some areas. ***Form Letter Comment #1744-6*** *(ID 4423)**:* *Consequences - The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. This NEPA omission makes all analyses in the DEIS flawed. How can we know how the Moffat Project would affect our land values, fisheries, ranch operations, or recreational opportunities? How would*

Comment Information	Comment	Comments and Responses
		the diversions affect local water and wastewater infrastructure that is so critical to our health and safety? **Response #1744-6:** The cumulative effects analysis for the Moffat Project evaluated past and present actions that continue to influence existing environmental conditions. The cumulative effects analysis also included reasonably foreseeable future actions that, when combined with one of the Project alternatives, would result in a cumulative effect on the environment. For purposes of organization of the Environmental Impact Statement (EIS) cumulative effects were evaluated in two timeframes: (1) past or ongoing present actions and (2) future actions. Each of these two timeframes includes a discussion of water-based or land-based actions. The DEIS includes the Windy Gap Firming Project (WGFP) as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2, under the sub-heading, Colorado River Water Quality, acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser

Comment Information	Comment	Comments and Responses
		River watershed, the Colorado-Big Thompson (C-BT) Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Form Letter Comment #1744-0*** *(ID 4422)**:*** *Local Socioeconomic Impacts - The Moffat Project would clearly reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic effects on our already stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. Our Grand County Board of Realtors fears that Moffat depletions of our aquatic resources will significantly reduce our natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well-being. Struggling through this economic recession, we have already taken serious hits over the last two years. Our constituents fear that further impacts to our streams and riparian ranch lands have significant impacts upon our local economy, a final blow that may be fatal to our community.*

Comment Information	Comment	Comments and Responses
		Response #1744-0: The socioeconomic impacts in Grand County are driven in part by the conclusions about impacts upon other resources (i.e., recreation, visual resources, surface water, etc.) and the resulting impacts upon overall tourism and economic activities that occur in the county. The analysis of socioeconomic impacts to Grand County was reviewed and expanded as appropriate in FEIS Section 5.19 to revise or support the socioeconomic conclusions. ***Form Letter Comment #1744-8*** *(ID 4421)**:*** *Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will clarify the actual impacts and require vastly increased mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion.* **Response #1744-8:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental and social effects according to the National Environmental Policy Act of 1969, as amended (NEPA) and the Corps' Clean Water Act Section 404 regulations. Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Form Letter Comment #1744-9*** *(ID 4420)**:*** *The US Army Corps of Engineers should deny the Moffat Firming Project and the Bureau of Reclamation should deny the Windy Gap Firming project as proposed. If they are to proceed, the DEIS documents should be re-written based upon sound*

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		science and real effects to natural resources in Grand County and other West Slope counties, including real estate values. **Response #1744-9:** Per 40 CFR 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a supplemental document will not be prepared for the Moffat Project. In response to comments received on the DEIS, additional analyses for the FEIS were conducted in the Fraser Valley including: • Additional analysis of the Fraser River downstream of Denver Water diversions (FEIS Section 5.3) • Evaluation of flushing flows in the Fraser River through Phase II Sediment Transport Analysis (FEIS Section 5.3) • Water quality analysis on Grand Lake (FEIS Section 5.2) • Nutrient and temperature analysis in the Fraser Basin (FEIS Section 5.2) • Groundwater-stream interactions, including fen sites (FEIS Sections 5.4 and 5.8) • Fish sampling on tributary streams to the Fraser River (FEIS Section 5.11) • Additional socioeconomic analysis in Grand County (FEIS Section 5.19)

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
GRAND COUNTY BOARD OF REALTORS #1 FORM LETTERS — UNIQUE		
Comment #713 Jean K. Wolter, Broker/Owner [redacted] Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446	From: Jean Wolter [mailto:[redacted]] Sent: Monday, March 15, 2010 10:49 AM To: MOFFAT.EIS@usace.army.mil Subject: Moffat DEIS Comments Dear Mr. Franklin, Please see the attached letter of comments on the Moffat Firming Projects. Thank you, Jean Wolter Jean Wolter [redacted] Please consider the environment before printing this e-mail. - GCBoR Moffat Comment Letter.doc	***Unique Comment #713-1*** *(ID 5377)**:*** *Please see the attached letter of comments on the Moffat Firming Projects.* **Response #713-1:** The Corps notes the comment.

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
	Attachments:	

GCBOR
Grand County Board of Realtors, Inc.
P.O. Box 466 · Granby, CO · 80446
Ph 970-887-9508 · Fax 970-887-9517

Scott Franklin, Moffat EIS Project Manager
US Army Corps of Engineers, Omaha District
Denver Regulatory Office
9307 South Wadsworth Boulevard
Littleton, CO 80128
moffat.eis@usace.army.mil
Fax: 303-979-0602

Moffat DEIS Comments from the Grand County Board of Realtors, Granby, Colorado

Dear Mr. Franklin,

We are writing to share with you our deep concerns for the proposed Denver Water Department Moffat Collection System Project (Moffat Project) as described in the Draft Environmental Impact Statement (DEIS) dated 30Oct09. We understand the project would involve trans-mountain diversion of an additional 18,000 acre feet of water from our West Slope watershed. This is in addition to approximately 60% of our stream flows presently diverted.

The Grand County Board of Realtors represents our local real estate industry including brokers, appraisers, legal professionals, and many landowners, all of whom would be materially affected by the Moffat Project. Real estate values in Grand County are primarily driven by our natural resource values including rivers and streams, riparian corridors, and irrigated ranch lands. The proposed Moffat Project diversions would affect thousands of acres of real estate, depleting our natural heritage and unfairly impact real estate values.

DEIS Fatally Flawed
The DEIS is fatally flawed in several ways:

- Purpose and need – the DEIS practically ignores water rights and the "Firming" process and moves directly in their narrow range of alternatives. We are told the project aims to "firm Denver's conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners. How can we possibly do our job representing landowners if this critical water rights information is withheld from us?
- Alternatives – the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

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	under NEPA. Cities in California are conserving 50% or more of their water and San Francisco Bay Area utilities have targeted conservation of 1,000,000 acre feet to meet their long term needs. Denver's conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions. • Affected Environment – The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are pipelines of PVC and concrete, not complex hydrologic ecosystems with abundant resource values. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 – Ground Water and Surface Water, A single Resource, dated 1998). How can we understand the project effects on our ranch lands and riparian resources without an honest hydrologic evaluation. • Consequences – The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. This NEPA omission makes all analyses in the DEIS flawed. How can we know how the Moffat Project would affect our land values, fisheries, ranch operations, or recreational opportunities? How would the diversions affect local water and wastewater infrastructure that is so critical to our health and safety? • Local Socioeconomic Impacts – The Moffat Project would clearly reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic effects on our already stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. Our Grand County Board of Realtors fears that Moffat depletions of our aquatic resources will significantly reduce our natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well being. Struggling through this economic recession, we have already taken serious hits over the last two years. Our constituents fear that further impacts to our streams and riparian ranch lands have significant impacts upon our local economy, a final blow that may be fatal to our community. Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will clarify the actual impacts and	

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

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	require vastly increased mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion. The US Army Corps of Engineers should deny the Moffat Firming Project and the Bureau of Reclamation should deny the Windy Gap Firming project as proposed. If they are to proceed, the DEIS documents should be re-written based upon sound science and real effects to natural resources in Grand County and other West Slope counties, including real estate values. Thank you for your concern, *Jean K. Wolter* Member of the Grand County Board of Realtors	

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

Comment Information	Comment	Comments and Responses
Comment #1774 Ronnie James	RECEIVED MAR 2010 Scott Franklin, Moffat EIS Project Manager US Army Corps of Engineers, Omaha District Denver Regulatory Office 9307 South Wadsworth Boulevard Littleton, CO 80128 moffat.eis@usace.army.mil Fax: 303-979-0602 Moffat DEIS Comments from the Grand County Board of Realtors, Granby, Colorado Dear Mr. Franklin, We are writing to share with you our deep concerns for the proposed Denver Water Department Moffat Collection System Project (Moffat Project) as described in the Draft Environmental Impact Statement (DEIS) dated 30Oct09. We understand the project would involve trans-mountain diversion of an additional 18,000 acre feet of water from our West Slope watershed. This is in addition to approximately 60% of our stream flows presently diverted. The Grand County Board of Realtors represents our local real estate industry including brokers, appraisers, legal professionals, and many landowners, all of whom would be materially affected by the Moffat Project. Real estate values in Grand County are primarily driven by our natural resource values including rivers and streams, riparian corridors, and irrigated ranch lands. The proposed Moffat Project diversions would affect thousands of acres of real estate, depleting our natural heritage and unfairly impact real estate values. **DEIS Fatally Flawed** The DEIS is fatally flawed in several ways: • Purpose and need – the DEIS practically ignores water rights and the "Firming" process and moves directly in their narrow range of alternatives. We are told the project aims to "firm Denver's conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners. How can we possibly do our job representing landowners if this critical water rights information is withheld from us? • Alternatives – the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required under NEPA. Cities in California are conserving 50% or more of their water and San Francisco Bay Area utilities have targeted conservation of 1,000,000 acre feet to meet their long term needs. Denver's conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions.	***Unique Comment #1774-1*** *(ID 5254)**:*** *P.S. if we don't get snow you don't have any water!!* **Response #1774-1:** The Corps notes the comment.

Comment-Response Report (Grand County Board of Realtors #1 Form Letters)

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	• Affected Environment – The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are pipelines of PVC and concrete, not complex hydrologic ecosystems with abundant resource values. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 – Ground Water and Surface Water, A single Resource, dated 1998). How can we understand the project effects on our ranch lands and riparian resources without an honest hydrologic evaluation. • Consequences – The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. This NEPA omission makes all analyses in the DEIS flawed. How can we know how the Moffat Project would affect our land values, fisheries, ranch operations, or recreational opportunities? How would the diversions affect local water and wastewater infrastructure that is so critical to our health and safety? • Local Socioeconomic Impacts – The Moffat Project would clearly reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic effects on our already stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. Our Grand County Board of Realtors fears that Moffat depletions of our aquatic resources will significantly reduce our natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well being. Struggling through this economic recession, we have already taken serious hits over the last two years. Our constituents fear that further impacts to our streams and riparian ranch lands have significant impacts upon our local economy, a final blow that may be fatal to our community. Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will clarify the actual impacts and require vastly increased mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion. The US Army Corps of Engineers should deny the Moffat Firming Project and the Bureau of Reclamation should deny the Windy Gap Firming project as proposed. If they are to proceed,	

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	the DEIS documents should be re-written based upon sound science and real effects to natural resources in Grand County and other West Slope counties, including real estate values. Thank you for your concern, *Ronnie James* Ronnie James P.S. if we don't get snow you don't have any water!!	

References

United States Army Corps of Engineers (Corps). 2007. Alternatives Screening Report, Moffat Collection System Project. U.S. Army Corps of Engineers Omaha District. August.

Grand County Board of Realtors #2 Form Letters

Comment-Response Report (Grand County Board of Realtors #2 Form Letters)

Comment Information	Comment	Comments and Responses
GRAND COUNTY BOARD OF REALTORS #2 FORM LETTER — STANDARD		
[The Grand County Board of Realtors #2 Standard Form Letter shown here on pages 1 and 2 was submitted by all the commenters listed below.] **Grand County Board of Realtors, Inc.** Comment #1260 Heidi illegible Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446 Comment #1699 illegible Cox, Member Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446 Comment #1729 Elizabeth K. Sands Grand County Board of Realtors, Inc. P.O. Box 466 Granby, CO 80446	GCBOR Grand County Board of Realtors, Inc. P.O. Box 466 · Granby, CO 80446 Ph 970-887-9588 · Fax 970-887-9517 To Mr. Scott Franklin, Moffat EIS Project Manager Corps of Engineers Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 moffat.eis@usace.army.mil Fax: 303-979-0602 GCBOR has legal standing as bona fide representatives of an important industry in Grand County, also indirect representatives of many land owners, all of whom would be significantly affected by the proposed actions of both Moffat and Windy Gap Firming projects as presented in Draft Environmental Impact Statements (DEIS). We have concern for indirect and cumulative effects of the proposed action and past trans-mountain water diversions from the Fraser and Colorado River. The DEIS is fatally flawed due to lack of reasonable detail on: • Purpose and need – the project ignores water rights and the "Firming" process. We understand the project is all about "firming conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners. • Alternatives – the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required under NEPA. Cities in California are conserving 50% or more of their water and the San Francisco Bay Area has targeted conservation of 1,000,000 acre feet to meet their long term needs. Front Range conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions. • Affected Environment – The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are lined with PVC or concrete, not complex hydrologic ecosystems. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 – Ground Water and Surface Water, A single Resource, dated 1998). • Consequences – The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. These effects reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic effects on our already	***Form Letter Comment #1745-1*** *(ID 5307)**:*** *GCBOR has legal standing as bona fide representatives of an important industry in Grand County, also indirect representatives of many land owners, all of whom would be significantly affected by the proposed actions of both Moffat and Windy Gap Firming projects as presented in Draft Environmental Impact Statements (DEIS).* **Response #1745-1:** The U.S. Army Corps of Engineers (Corps) notes the comment. ***Form Letter Comment #1745-6*** *(ID 5373)**:*** *We have concern for indirect and cumulative effects of the proposed action and past trans-mountain water diversions from the Fraser and Colorado River.* **Response #1745-6:** The Council on Environmental Quality interprets the National Environmental Policy Act of 1969, as amended (NEPA) regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding a proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of current conditions. The Draft

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	stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. • Local economic impacts- The GCBOR is fearful that the depletion of this natural resource will have a detrimental effect on the natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well being. Due to the recent downturn in the national economy we have already taken serious hits over the last two years. The GCBOR is concerned that impacting our streams any further will be a final blow to our local economy that we may not be able to recover from. Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will lead to vastly increased mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion. The US Army Corps of Engineers and Bureau of Reclamation should deny these two related projects as proposed. If they were to proceed, the DEIS documents should be re-written based upon sound science and real effects to aquatic resources in Grand County and other West Slope counties. Thank you for your concern,	Environmental Impact Statement (DEIS) catalogued a list of past projects in Section 5.2. These projects were included in the Platte and Colorado Simulation Model (PACSM) to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows were accounted for and disclosed in DEIS Chapter 3, specifically Section 3.1. The Corps provided additional information on past actions in the Final Environmental Impact Statement (FEIS) Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photograph documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversion locations modeled in PACSM. ***Form Letter Comment #1745-2*** *(ID 5372)**:*** *The DEIS is fatally flawed due to lack of reasonable detail on: Purpose and need - the project ignores water rights and the "Firming" process. We understand the project is all about "firming conditional water rights" so Front Range users can secure "firm water yield" yet the reader is offered no honest explanation of this process and the effects on water rights in Grand County including those held by local landowners.* **Response #1745-2:** The Corps relies on administration and enforcement of the State water laws to ensure downstream senior rights are protected. A Section 404 Permit would not impose conditions on the operation of a Project that

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		are within the jurisdiction of Colorado Water Law. The Corps defers to the State to resolve water law issues. The Corps' analysis for the DEIS is based on diversions under the Board of Water Commissioner's (Denver Water's) existing decrees. When evaluating a permit application, the Corps' regulations provide: "The dispute over property ownership would not be a factor in the Corps public interest decision" (33 Code of Federal Regulations [CFR] Part 320.4[g]). Whether water rights or other property rights need to be obtained, utilized, expanded, or managed differently in order to fulfill the basic purpose of the Proposed Action does not preclude the Corps from permitting an otherwise practicable alternative (40 CFR Part 230.10). The Corps may issue a Section 404 Permit even if other Federal, State or local authorizations have not been obtained before the Applicant has applied for a permit. ***Form Letter Comment #1745-3*** *(ID 5371)**:*** *Alternatives - the DEIS does not offer a reasonable array of alternatives and ignores the obvious, most cost effective alternative of conservation even though it should be required under NEPA. Cities in California are conserving 50% or more of their water and the San Francisco Bay Area have targeted conservation of 1,000,000 acre feet to meet their long term needs. Front Range conservation efforts are pitiful in comparison. Front Range cities should be required to conserve all possible water with all available technology before asking for any additional diversions.* **Response #1745-3:** The Corps conducted a detailed alternative screening process for the Moffat Collection System Project (Moffat Project or Project) that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations.

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		Water conservation is part of the solution for water supply projects. The Purpose and Need for the Moffat Project is to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to Denver Water's Water Collection System outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Form Letter Comment #1745-4*** *(ID 5370)**:*** *Affected Environment - The DEIS offers no readable explanation of how the water yields (in acre feet) relate to water flows in our streams and rivers (in cubic feet per second) and shallow riparian groundwater systems. The hydrology presented assumes our waterways are lined with PVC or concrete, not complex hydrologic ecosystems. USGS Chief Hydrologist Robert Hirsch tells us that shallow riparian groundwater and surface water are inextricably connected and must be considered together in resource management planning (USGS Circular 1139 - Ground Water and Surface Water, A single Resource, dated 1998).*

Comment Information	Comment	Comments and Responses
		Response #1745-4: In DEIS Section 3.1, changes in average annual flows were presented as a volume (in acre-feet [AF]) whereas changes in average monthly flows were presented as a rate (in cubic feet per second). The hydrology presented does not assume waterways are lined with polyvinyl chloride or concrete. The interaction between shallow riparian groundwater and surface water was considered and explained in the groundwater resource sections in DEIS Sections 3.4, 4.6.4 and 5.4. Surface water and groundwater are linked components of the hydrologic system in every watershed. Depending on the elevation of water levels in streams compared to the adjacent groundwater levels, water would flow between surface water bodies, streams, and aquifers. Thus, changes in surface water levels and flows may affect groundwater. The proposed diversions are expected to have minor direct impacts on groundwater, which would be limited to the local areas of the existing diversion structures. Extending the duration of the flow diversions would cause a minor increase in the amount of groundwater recharge directly beneath the unlined portions of the diversion structures and conveyance canals, which may cause minor increases in groundwater levels in those areas during the period of the extended flow diversion. Localized minor increases in recharge rates and groundwater levels would cause negligible impacts to groundwater resources and the ecosystem. Increasing groundwater recharge rates beneath the diversion and conveyance structures would partly offset the minor reductions in recharge that could result from stream flow reductions in some areas. ***Form Letter Comment #1745-5*** *(ID 5369)**:*** *Consequences - The DEIS ignores the cumulative effects of past, present, and cumulative effects from Moffat and Windy Gap trans-mountain diversions. These effects reduce resource and property values in Grand County yet the DEIS ignores the socioeconomic*

Comment Information	Comment	Comments and Responses
		effects on our already stressed community. Indeed, local hydrogeologist Geoff Elliott has stated real concern that the cumulative effects of the Moffat and Windy Gap projects will decimate our local ranching community, a community identified in our Grand County Master Plan as fundamental to our local heritage and way of life. **Response #1745-5:** The DEIS includes the Windy Gap Firming Project (WGFP) as part of the analysis because the WGFP is assumed to be on-line under the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2, under the sub-heading, Colorado River Water Quality, acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the Colorado-Big Thompson Project, and the WGFP." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. The West Slope agricultural and recreational economies were further addressed in FEIS Section 5.19.

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		The Environmental Impact Statement (EIS) describes the potential cumulative effects that would result from the Moffat Project combined with other projects and activities based on NEPA and Section 404(b)(1) criteria. The regulations for implementing NEPA define cumulative impacts as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions and regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). This regulation refers only to the cumulative impact of direct and indirect effects of the Proposed Action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (RFFAs). The Section 404 regulations state that "cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems" (40 CFR 230.11[g][1]). The cumulative effects analysis for the Moffat Project evaluated past and present actions that continue to influence existing environmental conditions. The cumulative effects analysis also included RFFAs that, when combined with one of the Project alternatives, would result in a cumulative effect on the environment. For purposes of organization of the EIS, cumulative effects were evaluated in two timeframes: (1) past or ongoing present actions and (2) future actions. Each of these two timeframes includes a discussion of water-

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		based or land-based actions. ***Form Letter Comment #1745-7*** *(ID 5376)**:*** *Local economic impacts- The GCBOR is fearful that the depletion of this natural resource will have a detrimental effect on the natural beauty and recreational opportunities in our area. Our Real estate market is primarily driven by tourism and the sale of secondary homes. Recreation and the natural beauty of the area are the primary products that we sell in Grand County. If our product is depleted or undermined by this action it will seriously affect the livelihood of many local people and local businesses that are associated with the real estate industry. Real Estate and tourism are the primary drivers of the Grand County economy. These industries are vital to our economic well-being. Due to the recent downturn in the national economy we have already taken serious hits over the last two years. The GCBOR is concerned that impacting our streams any further will be a final blow to our local economy that we may not be able to recover from.* **Response #1745-7:** The socioeconomic impacts in Grand County are driven in part by the conclusions about impacts upon other resources (e.g., recreation, visual resources, surface water, etc.) and the resulting impacts upon overall tourism and economic activities that occur in the county. The analysis of socioeconomic impacts to Grand County was reviewed and expanded as appropriate for FEIS Section 5.19 to revise or support the socioeconomic conclusions. ***Form Letter Comment #1745-8*** *(ID 5375)**:*** *Finally, the mitigations offered in the DEIS are pitifully inadequate to deal with actual effects of these projects. In fact, we believe that an honest re-evaluation of purpose and need, alternatives, affected environment, and consequences will lead to vastly increased*

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		mitigations that would bring health back to our stream and river corridors rather than forcing us to teeter on the brink of oblivion. **Response #1745-8:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental and social effects according to NEPA and the Corps' Clean Water Act regulations. Appropriate conceptual mitigation components are incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Form Letter Comment #1745-9*** *(ID 5374)**:*** *The US Army Corps of Engineers and Bureau of Reclamation should deny these two related projects as proposed. If they were to proceed, the DE IS documents should be re-written based upon sound science and real effects to aquatic resources in Grand County and other West Slope counties.* **Response #1745-9:** Per 40 CFR 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a supplemental document will not be prepared for the Moffat Project.

References

United States Army Corps of Engineers (Corps). 2007. Alternatives Screening Report, Moffat Collection System Project. U.S. Army Corps of Engineers Omaha District. August.

Gross Reservoir Expansion Form Letters

Comment-Response Report (Gross Reservoir Expansion Form Letters)

Comment Information	Comment	Comments and Responses
GROSS RESERVOIR EXPANSION FORM LETTER — STANDARD		
[The Gross Reservoir Expansion Standard Form Letter shown here on page 1 was submitted by all the commenters listed below.] **Residents of the Gross Reservoir Community** Comment #1630 Elid Jiminez Comment #1639 Charles C. McKay Comment #1645 Jim Moss Comment #1658 Stephanie Ropp Comment #1664 Lawrence Shearin Comment #1669 Jerry Stolhand	February 16, 2010 U.S. Army Corps of Engineers Attn: Scott Franklin 9307 S. Wadsworth Blvd. Littleton, CO 80128 Denver Water Board Brian Gogas Mail Code 415, 1600 W. 12th Ave. Denver, CO 80204 FERC Attn: Sec. Kimberly Bose 888 First St, NE Washington, DC 20426 Re: Gross Reservoir Expansion in Arvada, Colorado Dear Mr. Franklin, Mr. Gogas & Ms. Bose, I am writing this letter to show my support for the Gross Reservoir expansion. Expanding this reservoir will increase the water storage for the area and will have the least amount of impact to the environment. This expansion should be a top priority for Denver Water. Thank you,	***Form Letter Comment #1739-1*** *(ID 2129)**:*** *I am writing this letter to show my support for the Gross Reservoir expansion. Expanding this reservoir will increase the water storage for the area and will have the least amount of impact to the environment. This expansion should be a top priority for Denver Water.* **Response #1739-1:** The U.S. Army Corps of Engineers (Corps) notes the support of the Moffat Collection System Project (Moffat Project or Project). Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to the National Environmental Policy Act of 1969, as amended.

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Gross Reservoir Form Letters

Comment-Response Report (Gross Reservoir Form Letters)

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GROSS RESERVOIR FORM LETTER — STANDARD		
[The Gross Reservoir Standard Form Letter shown here on page 1 was submitted by all the commenters listed below.] **Residents of the Gross Reservoir Community** Comment #961 D. Perrin Comment #962 Sherill Kumbayi Comment #963 Gretchen Wiegand Comment #964 Jennie Curtis Comment #966 D. Pieter Strauss Comment #967 Beverly Kurtz Comment #968 Leslie Faurot Comment #969 James Gritz Comment #970 Kathleen Gritz Comment #971 Carla Owsley	We, the undersigned residents of the Gross Reservoir community, believe Denver Water should not be issued a permit for FERC Project 2035 or a Section 404 permit from the US Army Corps of Engineers. The existing Draft Environmental Impact Statement (DEIS) does not fully address the NO ACTION alternative which should encourage more conservation by Denver Water users (e.g. adjust rate structures upward for heavy users, mandate low flush and low consumption appliances in new construction, offer more rebates for xeriscaping and installation of water efficient appliances, etc) The DEIS also does not fully address or offer mitigations for the noise, dust, traffic, loss of carbon sink, damaged air quality, decrease in home values, spread of pine beetle infestations, loss of aquatic recreational opportunities that a 5 year construction process involving the removal of 465 acres of trees and raising the existing dam another 125 feet would cause. The already seriously depleted river system on the Western slope will experience even more diversion of resources. The damage to this sensitive mountain zone and the loss of habitat is irreversible if Gross Dam is raised and the reservoir enlarged. Further study could and should be given to water storage opportunities further downstream in a less environmentally and ecologically sensitive area. The DEIS needs to be reevaluated and rewritten, and more completely cover mitigations of all the negative impacts. **Signature** **Print Name** **Address**	***Form Letter Comment #960-1*** *(ID 2786)**:*** *We, the undersigned residents of the Gross Reservoir community, believe Denver Water should not be issued a permit for FERC Project 2035 or a Section 404 permit from the US Army Corps of Engineers.* **Response #960-1:** Prior to making decisions on the proposed Moffat Collection System Project (Moffat Project or Project), the U.S. Army Corps of Engineers (Corps) will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA). ***Form Letter Comment #960-2*** *(ID 2785)**:*** *The existing Draft Environmental Impact Statement (DEIS) does not fully address the NO ACTION alternative which should encourage more conservation by Denver Water users (e.g. adjust rate structures upward for heavy users, mandate low flush and low consumption appliances in new construction, offer more rebates for xeriscaping and installation of water efficient appliances, etc.).* **Response #960-2:** The No Action Alternative is one which results in no construction requiring a Corps Section 404 Permit. It may be brought by (1) the Board of Water Commissioners (Denver Water) electing to modify its proposal to eliminate work under the jurisdiction of the Corps, or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 Code of Federal Regulations [CFR] 1502.14[d]) and Section 404 Regulations (33 CFR 325 Appendix B Parts 9.b[5][b]). The Environmental Impact Statement (EIS) compares

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Comment Information	Comment	Comments and Responses
Comment #972 Fern Lund Comment #973 Marguerite Robinson Comment #974 Ammon Balaster Comment #975 Wendy Wilson Comment #978 Ann H. Strauss Comment #979 K. Coddington Comment #980 Jack Coddington Comment #981 Stephen Robinson		the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps required that Denver Water develop an alternative that did not require a Corps permit, yet did manage supply and demand to meet 15,000 acre-feet per year of supply. Since it is unrealistic to assume no future growth would occur and unrealistic that Denver Water would implement no changes to meet future water supply needs, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. The Corps believes the steps outlined for various restriction scenarios were a reasonable approach for developing the No Action Alternative. Denver Water is implementing a conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 acre-feet of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. Currently, new housing construction is required to install low-flush toilets, low-flow showers, and low-flow faucets. Additionally, Denver Water has rebate programs in place to encourage the replacement of old toilets and old washing machines to more efficient ones. The savings associated with these retrofits are used when Denver Water calculates its future water demand.

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		Form Letter Comment #960-3 *(ID 2784)**:*** *The DEIS also does not fully address or offer mitigations for the noise, dust, traffic, loss of carbon sink, damaged air quality, decrease in home values, spread of pine beetle infestations, loss of aquatic recreational opportunities that a 5 year construction process involving the removal of 465 acres of trees and raising the existing dam another 125 feet would cause. The already seriously depleted river system on the Western slope will experience even more diversion of resources. The damage to this sensitive mountain zone and the loss of habitat is irreversible if Gross Dam is raised and the reservoir enlarged. Further study could and should be given to water storage opportunities further downstream in a less environmentally and ecologically sensitive area. The DEIS needs to be reevaluated and rewritten, and more completely cover mitigations of all the negative impacts.* **Response #960-3:** An expanded analysis of impacts to communities surrounding Gross Reservoir is included in the Final Environmental Impact Statement (FEIS) Section 5.19, including an evaluation of impacts to property values. Pine Beetle The forests at Gross Reservoir have not been affected by the current outbreak of mountain pine beetle in the Rockies, and have a moderate to good chance of not being affected. Therefore, it is not appropriate to forecast the potential changes in forest structure in the FEIS. Information about the relationship of the Project and mountain pine beetle has been added to the to the vegetation analysis in FEIS Sections 4.6.7 and 5.7. Furthermore, the proposed Project would not affect the current pine beetle outbreak.

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		Denver Water would also work with the U.S. Forest Service (USFS) to ensure that forest clearing and revegetation would be consistent with National Forest Standards. In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million over a five-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects will take place around and upstream of Denver Water reservoirs. Restoration also will help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Refer to FEIS Appendix G for a description of the Forests to Faucets Partnership and other cooperative efforts. Noise and Air All Gross Reservoir construction and operation activity would be conducted within the applicable noise standards and guidelines as administered by Boulder County and the U.S. Environmental Protection Agency (EPA), as summarized in FEIS Table 5.14-1. As discussed in FEIS Section 5.13.7, a land development construction permit would be required from the Colorado Department of Public Health and Environment Air Pollution Control Division prior to beginning the land clearing activities. The operating terms and conditions of a land development permit include a Fugitive Dust Control Plan to control emissions of particulate

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		matter (dust). The Fugitive Dust Control Plan would define specific control measures, such as those listed in FEIS Table 5.13 9, that must be complied with by Denver Water and its contractors throughout the Project to minimize the release of fugitive dust. While a Corps' Section 404 Permit would require that construction activities conform to Colorado State Air Quality standards, the Corps would not require a compensation plan as a permit condition. However, it is the Corps' understanding that Denver Water is voluntarily meeting directly with local residents affected by the construction of the proposed Project in an attempt to address residents' concerns. Greenhouse gas emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in FEIS Section 5.13. The calculations include on-road exhaust emissions from worker commuter vehicles, delivery trucks, and other Project construction equipment. Detailed emission calculation spreadsheets and references are presented in FEIS Appendix I. Information about the carbon value of the trees at Gross Reservoir has been added to the vegetation analysis in FEIS Section 5.7. Traffic The Corps acknowledges that there would be delays caused by slow-moving construction vehicles on County Road (CR) 77S, State Highways 72, 93, and 128, U.S. Highway (US) 287, Arapahoe Road (US 287 bypass to County Line Road), County Line Road and CR 2050. During construction, the volume of construction traffic could vary day-to-day and month-to-month, depending on the type and number of construction activities taking place. Based on preliminary construction plans, about 22 haul and supply trucks

Comment-Response Report (Gross Reservoir Form Letters)

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		could travel to Gross Dam each day on average. During the peak construction period, about 35 trucks could deliver material daily. Additional trucks could be used to remove trees and debris from the reservoir site at the appropriate time. The number of commuting workers could vary considerably. An average of 60 commuter vehicles could make daily trips to Gross Reservoir, with about 100 expected on the busiest construction days. Denver Water would require contractors to encourage carpooling to the work site. Recreation A majority of the North Shore Recreation Area would not be impacted by the Proposed Action (i.e., would not be inundated) and is expected to remain open during construction. The North Shore Recreation Area contains 40 parking spaces that would be continued to be used by recreationists during construction and after the reservoir enlargement is complete. Vehicle access to Gross Reservoir would remain open via the north and south access points during the construction period. The north side of the reservoir would remain accessible by Flagstaff Road from Boulder and the south and west sides of the reservoir would still be accessible via CR 68 and CR 97E. Denver Water would prepare a recreation plan for the construction period to keep recreational facilities open to the public as much as possible without compromising public safety or construction progress. Certain areas would be restricted or temporarily closed by Denver Water as needed.

Jurisdictions/Municipalities Part A

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
JURISDICTIONS/MUNICIPALITIES PART A		
Comment #450 James Newberry, County Commissioner Grand County	*12-01-2009 Public Hearing Commenter (Boulder Country Club)* James Newberry, J-A-M-E-S N-E-W-B-E-R-R-Y, [redacted] < > I thought she had the flag. I get double-flagged. Thank you very much for the opportunity to be here tonight. And Grand County has been in this process as a cooperating agent; is that right? We've got a different designation, but we have been on the very first of it because we do not have permitting authority, even though a lot of impacts will be coming out of Grand County, the Fraser River, especially, and also the Williams Fort. So we have been involved, and we appreciate that very much. I don't want to take up too much of your time because I know most of you are probably here for the enlargement of Gross Reservoir, and we'll have our time in Grand County tomorrow night. But I wanted to try to bring to you part of our issue that we have in Grand County. And it is the cumulative effects. That's what we're really focusing on. What we have is the -- I've got a handout here that I'll leave, and it's basically -- we keep getting numbers thrown around about how much water is diverted out of Grand County. *[For the record, the handout referred to in the above statement was not provided to the U.S. Army Corps of Engineers.]* Some of the more higher estimates are around 85 percent below Windy Gap. And if you know where that is, it's just west of Granby. In actuality, on the averages, we have come up with about 72 percent would be diverted above Windy Gap if the Windy Gap Firming Project and the Moffat Collection System are put in place. And we feel like that's putting a heavy burden on the rivers and streams in Grand County. To the credit of Denver Water and Northern Water Conservancy District, we have been working on a plan to come up to mitigate those impacts, and we want to make sure that we're dealing with the Corps in so much that they recognize the hard work that's been put into that. We feel like we know that the water was purchased by both Denver Water and Northern, and they are entitled to that water. But the environmental impacts is what we have to deal with on the other side. And we feel like we have a pretty good plan that we're coming up with, and we would hope that the Corps of Engineers helps -- is a part of recognizing that as we get into the process. < > Thank you very much.	***Comment #450-1*** *(ID 79)**:*** *And Grand County has been in this process as a cooperating agent; is that right?* **Response #450-1:** Grand County has participated in the National Environmental Policy Act of 1969, as amended (NEPA) process for the Moffat Collection System Project (Moffat Project or Project) as a Consulting Agency per an agreement with the U.S. Army Corps of Engineers (Corps) dated December 2004. The agreement entitles Grand County to "review and comment both on the use of County data and associated analysis, as well as on impacts that may occur within the County, as identified through the Environmental Impact Statement process." ***Comment #450-2*** *(ID 80)**:*** *What we have is the -- I've got a handout here that I'll leave, and it's basically -- we keep getting numbers thrown around about how much water is diverted out of Grand County. Some of the higher estimates are around 85 percent below Windy Gap. And if you know where that is, it's just west of Granby. In actuality, on the averages, we have come up with about 72 percent would be diverted above Windy Gap if the Windy Gap Firming Project and the Moffat Collection System are put in place. And we feel like that's putting a heavy burden on the rivers and streams in Grand County.* **Response #450-2:** The Draft Environmental Impact Statement (DEIS) includes the Windy Gap Firming Project (WGFP) as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not

Comment Information	Comment	Comments and Responses
		divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the Colorado-Big Thompson (C-BT) Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to the Final Environmental Impact Statement (FEIS) Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Comment #450-3*** *(ID 81)**:*** *We feel like we know that the water was purchased by both Denver Water and Northern, and they are entitled to that water. But the environmental impacts are what we have to deal with on the other side. And we feel like we have a pretty good plan that we're coming up with, and we would hope that the Corps of Engineers helps -- is a part of recognizing that as we get into the process.* **Response #450-3:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. The Corps has complied and will comply with all Federal regulations for the preparation of the described Environmental Impact Statement (EIS) and evaluation of a Section 404 Permit application, including public involvement and comment.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #451 Bob Crifasi, Parks and Water Resources Administrator City of Boulder, Open Space and Mountain Parks	*12-01-2009 Public Hearing Commenter (Boulder Country Club)* Hi. I'm Bob Crifasi, City of Boulder Open Space and Mountain Parks and water resources administrator with the City of Boulder, Open Space and Mountain Parks. 7315 Red Deer Road, Boulder, 80301. I'm here to just give a brief update on a little bit of work that we're doing. We're in negotiation with the City of Denver and the City of Lafayette to construct appropriate mitigation for aquatic impacts on the South Boulder Creek part of this project. And what we are hoping to bring to our boards and council in the near future are two intra-governmental agreements that we're negotiating that would, we believe, be an appropriate mitigation response for aquatic impacts on South Boulder Creek. We hope to have those as a formal submittal before the end of the written comment period. And that's contingent, of course, on board's and council's approval. So these are staff -- staff workings at this point, and we're reasonably optimistic that we can come up with a solution for East Slope, South Boulder Creek impacts to the aquatics that would establish a 5,000 acre-foot environmental pool within Gross Reservoir and then utilize water rights owned by the City of Boulder and the City of Lafayette. No new West Slope water, tying that in in the large pool and run that down to create an in-stream flow within South Boulder Creek all the way down to its confluence. It's an ongoing negotiation; a lot of work going into it. And that's about all I have to say at this point. Thank you very much.	***Comment #451-1*** *(ID 82)**:*** *I'm here to just give a brief update on a little bit of work that we're doing. We're in negotiation with the City of Denver and the City of Lafayette to construct appropriate mitigation for aquatic impacts on the South Boulder Creek part of this project. And what we are hoping to bring to our boards and council in the near future are two intra-governmental agreements that we're negotiating that would, we believe, be an appropriate mitigation Response for aquatic impacts on South Boulder Creek. So these are staff -- staff workings at this point, and we're reasonably optimistic that we can come up with a solution for East Slope, South Boulder Creek impacts to the aquatics that would establish a 5,000 acre-foot environmental pool within Gross Reservoir and then utilize water rights owned by the City of Boulder and the City of Lafayette. No new West Slope water, tying that in in the large pool and run that down to create an in-stream flow within South Boulder Creek all the way down to its confluence.* **Response #451-1:** The Corps notes the comment.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #453 Shane Hale, Town Manager Town of Grand Lake	*12-01-2009 Public Hearing Commenter* Shane Hale. I live at [redacted]. I'm the town manager for Grand Lake. I would like to begin by asking for a 45-day extension to the comment period. This project scoping occurred over four years ago, so it does little harm to give an extension. Furthermore, it's a 2000-page document. It was released over the holidays, and I think it's reasonable to give a little bit more time to review it. Sorry about the note cards. I appreciate that this project does include 16,000 acre-feet of conservation, but I do believe that the entire 34,000 acre-feet could be achieved by conservation alone. According to the DEIS, the total system demand will be approximately 375,000 acre-feet in the year 2030, which consists roughly 50 percent or 187,500 acre-feet of outdoor water. Thus, if you just did 20 percent reduction after a warning by Denver Water, you release -- you could realize 37,500 acre-feet of water or 3,500 more acre-feet than this project will firm up. This type of conservation is not unprecedented for water suppliers. In arid locations like Denver -- for example, the Southern Nevada Water Authority pays customers to remove bluegrass and has dropped the water usage by 30 percent. This would -- for this project, we realize Denver Water, 56,250 acre-feet there, and we realize a 30 percent reduction in outdoor water. In addition, conservation would also save all the rate payers because this project is proposed to cost 149 million in construction and operation maintenance for the Gross Reservoir. So the West Slope and the Front Range both benefit. In reviewing the DEIS, I was surprised that the project makes no mention of the impacts to Grand Lake or the Three Lakes Region. To be sure, Grand Lake will be impacted. 18,000 acre-feet removed from the Fraser in May through July -- is that halfway? < > Okay. Thanks – July will result in water that has higher nutrient content. That water is pumped into Grand Lake and will exacerbate problems we've experienced in the past with your high algae and diminished clarity. But the DEIS does ignore Windy Gap from the project where it's proposing it's taking 30,000 acre-feet. The commissioner mentioned that, if both of these are approved, only 26 percent of the native flows of upper Colorado will be left in Grand County. Yet, no mention is made of the multiple impacts that these projects will cause. I believe the Bureau and the Corps of Engineers should review these simultaneously because they are such a major diversion project.	***Comment #453-1*** *(ID 103)**:*** *I would like to begin by asking for a 45-day extension to the comment period. This project scoping occurred over four years ago, so it does little harm to give an extension. Furthermore, it's a 2000-page document. It was released over the holidays, and I think it's reasonable to give a little bit more time to review it.* **Response #453-1:** The following is a summary of the initial public comment period time frame and subsequent extensions. A Notice of Availability (NOA) of a DEIS and Public Notice announcing the receipt and evaluation of a Clean Water Act (CWA) Section 404 Permit application from the Board of Water Commissioners (Denver Water) for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments and to facilitate, a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days. ***Comment #453-4*** *(ID 104)**:*** *I appreciate that this project does include 16,000 acre-feet of conservation, but I do believe that the entire 34,000 acre-feet could be achieved by conservation alone. According to the DEIS, the total system demand will be approximately 375,000 acre-feet in the year 2030, which consists roughly 50 percent or 187,500 acre-feet of outdoor water. Thus, if you just did 20 percent reduction after a warning by Denver Water, you release -- you could realize 37,500 acre-feet of water or 3,500 more acre-feet than this project will firm up.*

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
	I've not been given enough time to address how glossed over and Pollyanna-ish I believe the impacts of these projects to Grand County are. While we can hope that they are not huge impacts, I think we need to plan for the worst. All possible mitigation should be clearly defined in record of decision so Grand County isn't left to mitigate the impacts of another ill-conceived water project.	**Response #453-4:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e. 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Watering Restrictions Mandatory watering restrictions are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 acre-feet (AF). Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS.

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		Comment #453-5 *(ID 105)**:*** *In addition, conservation would also save all the rate payers because this project is proposed to cost 149 million in construction and operation maintenance for the Gross Reservoir. So the West Slope and the Front Range both benefit.* **Response #453-5:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Comment #453-3*** *(ID 106)**:*** *In reviewing the DEIS, I was surprised that the project makes no mention of the impacts to Grand Lake or the Three Lakes Region. To be sure, Grand Lake will be impacted. 18,000 acre-feet removed from the Fraser in May through July. July will result in water that has higher nutrient content. That water is pumped into Grand Lake and will exacerbate problems we've experienced in the past with your high algae and diminished clarity.* **Response #453-3:** Additional water quality analysis has been performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #453-2*** *(ID 108)**:*** *But the DEIS does ignore Windy Gap from the project where it's proposing it's taking 30,000 acre-feet. The commissioner mentioned that, if both of these are approved, only 26 percent of the native flows of upper Colorado will be left in Grand County. Yet, no mention is made of the multiple impacts that these projects will cause. I believe the Bureau and the Corps of Engineers should review these simultaneously because they are such a major diversion project.* **Response #453-2:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full

Comment Information	Comment	Comments and Responses
		Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Comment #453-6*** *(ID 109)**:*** *While we can hope that they are not huge impacts, I think we need to plan for the worst. All possible mitigation should be clearly defined in record of decision so Grand County isn't left to mitigate the impacts of another ill-conceived water project.* **Response #453-6:** FEIS Appendix M contains Denver Water's Conceptual Mitigation Plan to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #458 Shanna Koenig, Representative Northwest Colorado Council of Governments	*12-01-2009 Public Hearing Commenter (Boulder Country Club)* I have a clogged ear, so if I start yelling, let me know. But my name is Shanna Koenig, and my address is [redacted] I represent Northwest Colorado Council of Governments, and we represent Grand, Summit, Pitkin, and Gunnison County and most municipalities and water and sanitation districts within those boundaries. And I just wanted to touch on a few points, some that have already been covered by Commissioner Newberry and Grand Lake and some from Trout Unlimited. We haven't had time to do a thorough review of the DEIS, but we do have a few things we'd like to add. The DEIS does state that there will be little to no impact caused by the Moffat Collection Project because water will only be diverted during run-off months. If this is, in fact, true, we feel the Corps of Engineers should condition their approvals on that basis, so if there are impacts, it will be appropriately mitigated. It is only reasonable that the impact be mitigated and that at the risk of scientific uncertainty over the scope of the impacts to the aquatic environment should not fall solely on the river and those who rely on it. We also believe very strongly that the cumulative impact of previous projects, as well as the Moffat Expansion Project and Windy Gap Firming Project, should all be looked at together. The DEIS considered and found the cumulative impacts from the Moffat project to basically be little to none. However, it's important to recognize that the upper Colorado River Basin is already severely stressed, and even a negligible impact should be considered. Commissioner Newberry pointed out that well over half of the water in the upper Colorado River system is diverted to the East Slope and that a significant amount, up to three-fourths, could be diverted if both of these projects were to go through. And we also are very supportive of the Grand County Stream Management Plan as well. And we also feel that that should be included moving forward.	***Comment #458-1*** *(ID 117)**:*** *We haven't had time to do a thorough review of the DEIS, but we do have a few things we'd like to add.* **Response #458-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #458-3*** *(ID 118)**:*** *The DEIS does state that there will be little to no impact caused by the Moffat Collection Project because water will only be diverted during run-off months. If this is, in fact, true, we feel the Corps of Engineers should condition their approvals on that basis, so if there are impacts, it will be appropriately mitigated. It is only reasonable that the impact be mitigated and that at the risk of scientific uncertainty over the scope of the impacts to the aquatic environment should not fall solely on the river and those who rely on it.* **Response #458-3:** A Corps' Section 404 Permit, if issued, would include mitigation for impacts identified by the EIS analysis. If issued, a Section 404 Permit would include a statement that the Corps can re-evaluate and re-condition the Section 404 Permit as conditions warrant. ***Comment #458-2*** *(ID 119)**:*** *We also believe very strongly that the cumulative impact of previous projects, as well as the Moffat Expansion Project and Windy Gap Firming Project, should all be looked at together. The DEIS considered and found the cumulative impacts from the Moffat project to basically be little to none. However, it's important to recognize that the upper Colorado River Basin is already severely stressed, and even a negligible impact should be considered. Commissioner Newberry pointed out that well over half of the water in the upper Colorado River*

Comment Information	Comment	Comments and Responses
		system is diverted to the East Slope and that a significant amount, up to three-fourths, could be diverted if both of these projects were to go through. **Response #458-2:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. The EIS describes the potential cumulative effects that would result from the Moffat Project combined with other projects and activities based on NEPA and Section 404(b)(1) criteria. The regulations for implementing NEPA define cumulative impacts as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions and regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can

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		result from individually minor but collectively significant actions taking place over a period of time" (40 Code of Federal Regulations [CFR] 1508.7). This regulation refers only to the cumulative impact of direct and indirect effects of the Proposed Action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions. The Section 404 regulations state that "cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems" (40 CFR 230.11[g][1]). The cumulative effects analysis for the Moffat Project evaluated past and present actions that continue to influence existing environmental conditions. The cumulative effects analysis also included reasonably foreseeable actions that, when combined with one of the Project alternatives, result in a cumulative effect on the environment. For purposes of organization of the EIS cumulative effects were evaluated in two timeframes: (1) past or ongoing present actions and (2) future actions. Each of these two timeframes includes a discussion of water-based or land-based actions. ***Comment #458-4*** *(ID 121)**:*** *And we also are very supportive of the Grand County Stream Management Plan as well. And we also feel that that should be included moving forward.* **Response #458-4:** The Grand County Stream Management Plan has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following

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		resources: water quality (Sections 3.2 and 4.6.2), geomorphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), Physical Habitat Simulation (PHABSIM) model data for analysis of aquatic biological resources (Sections 3.11, 4.6.11 and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15).

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #504 Gary Martinez, County Manager Summit County 208 East Lincoln Avenue Breckenridge, CO 80424	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* Is this on? < > Okay, great. Thank you. My name is Gary Martinez, Summit County Manager. My work address is 208 East Lincoln Avenue, Breckenridge, Colorado. It's the old county courthouse. And, I'm sorry, what other information did you need, to start? < > Oh. Gary, G-a-r-y, M-a-r-t-i-n-e-z. To start off, I know you didn't want to start with shortcomings of the Army Corps, but I must say, we're deeply disappointed this meeting was scheduled tonight with the National Championship football game. < > Well, it says it's on. Is it coming through? < > My joke is done. < > One-two, one-two, testing, test. < > So we'll pass on the football game today. I actually it's occurring upstairs. We appreciate the opportunity to comment on the Draft EIS. There'll be four people from Summit County Government speaking this evening. I'm the first. Karn Stiegelmeier, County Commissioner Stiegelmeier, will be next, Commissioner Robert French after that; and our water counsel, Barney White. First comment is -- I also want to comment that we'll be making written testimony, that will be provided before your deadline, that will go into much greater detail than we will be able to do here tonight. First comment is that I want to point out, to yourselves as well as the other folks here in the audience tonight, that the County is involved in long-term negotiations with Denver	***Comment #504-1*** *(ID 340)**:*** *The first comment is that the Moffat Project will have significant impacts in Summit County in water, water quality, environmental resources, and local economies, not just in Summit County but throughout the Colorado River Basin. Summit County supports the work and efforts of Grand County and other local governments to ensure that all the project impacts, Moffat Project impacts, are adequately disclosed.* **Response #504-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #504-3*** *(ID 341)**:*** *The 2030 water supply scenarios modeled in the DEIS include both the preferred -- including both the preferred alternative and the no-action alternative, show increased diversions through the Roberts Tunnel as compared to the 2016 full-use scenario. These diversions cause corresponding reductions in flows to the Blue River and lake levels in Dillon Reservoir. This, of course, is a concern to Summit County.* **Response #504-3:** As Denver Water's demand grows in the future, Denver Water would divert additional water from the Blue River via their Roberts Tunnel Collection System. The hydrologic effects of these diversions, including flow reductions in the Blue River and fluctuations of Dillon Reservoir lake levels were evaluated and are presented in DEIS Chapter 4 for each resource.

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	Water, on a wide range of issues, along with a lot of other West Slope entities, including Denver's compliance with the Blue River Decree and impacts of the Moffat Project. It's been going on for quite some time. We've made some progress with the County. We're hopeful that these negotiations will be successful, but no agreements have been in place yet; so, therefore, we'll be making comments outside of that other negotiation, about the Moffat Project, this evening. The first comment is that the Moffat Project will have significant impacts in Summit County in water, water quality, environmental resources, and local economies, not just in Summit County but throughout the Colorado River Basin. Summit County supports the work and efforts of Grand County and other local governments to ensure that all the project impacts, Moffat Project impacts, are adequately disclosed. The 2030 water supply scenarios modeled in the DEIS include both the preferred -- including both the preferred alternative and the no-action alternative, show increased diversions through the Roberts Tunnel as compared to the 2016 full-use scenario. These diversions cause corresponding reductions in flows to the Blue River and lake levels in Dillon Reservoir. This, of course, is a concern to Summit County. These increased diversions to the Roberts Tunnel would be -- could be concentrated during the months of May through September, which are prime recreational season here in Summit County. And, again, this is a recreation-based economy, and that sort of fluctuation in lake levels and reduction in stream flows is, of course, another major concern. The reduced flows in the Blue River will also result in reductions in the wetlands adjacent to the Blue River between Dillon and Green -- Green Mountain Reservoir. Also, in that same stretch of river between Dillon and Green Mountain Reservoir, there'll be permanent adverse impacts from this project to boating opportunities on the Blue River, because of decreases in the number of days that fall within minimum flow range of 300 to 600 cfs and decreases in the number of days that fall within the optimum flow range of 600 to 1100 cfs. There may be others here this evening to talk about that, but we wanted to point that out, for sure. I'd also like to point out that these impacts are only incremental impacts of the development of additional water analyzed in the Draft, DEIS. The Draft EIS does not examine the ongoing impacts on the natural ecosystem caused by Denver's ongoing operations. Summit and Grand counties have already been impacted dramatically over the years, and these new impacts are just on top of those old or existing impacts. We believe the cumulative impacts of this and previous water projects have not been adequately analyzed so far in this DEIS.	***Comment #504-5*** *(ID 342)**:*** *These increased diversions to the Roberts Tunnel would be -- could be concentrated during the months of May through September, which are prime recreational season here in Summit County. And, again, this is a recreation-based economy, and that sort of fluctuation in lake levels and reduction in stream flows is, of course, another major concern.* **Response #504-5:** Impacts to boating and fishing along the Blue River and at Dillon Reservoir were discussed in DEIS Section 4.13. Denver Water agreed in the Colorado River Cooperative Agreement (CRCA) to use its best efforts to maintain the water level of Dillon Reservoir for recreational and aesthetic purposes at or above 9,012 feet in elevation from June 18 to Labor Day of each year. ***Comment #504-4*** *(ID 343)**:*** *The reduced flows in the Blue River will also result in reductions in the wetlands adjacent to the Blue River between Dillon and Green -- Green Mountain Reservoir. Also, in that same stretch of river between Dillon and Green Mountain Reservoir, there'll be permanent adverse impacts from this project to boating opportunities on the Blue River, because of decreases in the number of days that fall within minimum flow range of 300 to 600 cfs and decreases in the number of days that fall within the optimum flow range of 600 to 1100 cfs.* **Response #504-4:** The analysis was based on the most current information available at the time the DEIS was prepared in identifying minimum boating flows. In DEIS Section 3.13, the days for minimum and optimum flows were determined from several sources including the Upper Colorado River Basin Study, American Whitewater, and personal interviews with commercial raft guides and private kayakers. New information in the Grand County Stream Management Plan indicates a minimum flow of 400 cubic

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	And, finally, the alternative study in the EIS has essentially the same or greater impacts on the Blue River. The Corps of Engineers, we believe, has a duty to, under the Clean Water Act, identify and study alternatives to the Moffat Project that would have less impact on the waters of the United States, including the Blue River. I do not believe that has been done so far in the Draft EIS. Karn Stiegelmeier will -- will follow.	feet per second (cfs) for the section between Dillon Reservoir and Green Mountain Reservoir. As such, the analysis has been adjusted in FEIS Section 5.15 to reflect this range of flows. An analysis has been included in the FEIS to analyze the section of the Blue River below Green Mountain Reservoir to the confluence with the Colorado River. ***Comment #504-6*** *(ID 344)**:*** *I'd also like to point out that these impacts are only incremental impacts of the development of additional water analyzed in the Draft, DEIS. The Draft EIS does not examine the ongoing impacts on the natural ecosystem caused by Denver's ongoing operations. Summit and Grand counties have already been impacted dramatically over the years, and these new impacts are just on top of those old or existing impacts. We believe the cumulative impacts of this and previous water projects have not been adequately analyzed so far in this DEIS.* **Response #504-6:** The Council on Environmental Quality interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were

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		included in the Platte and Colorado Simulation Model (PACSM) to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g. St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversions locations modeled in PACSM. ***Comment #504-2*** *(ID 345)**:*** *And, finally, the alternative study in the EIS has essentially the same or greater impacts on the Blue River. The Corps of Engineers, we believe, has a duty to, under the Clean Water Act, identify and study alternatives to the Moffat Project that would have less impact on the waters of the United States, including the Blue River. I do not believe that has been done so far in the Draft EIS.* **Response #504-2:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The Corps did not identify a least environmentally damaging practicable alternative

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		(LEDPA) in the DEIS. The Corps will make a determination of the LEDPA based on its review of the information and analysis contained in the FEIS, per the Corps' Section 404 regulations.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #505 Karn Stiegelmeier, County Commissioner Summit County 208 East Lincoln Avenue Breckenridge, CO 80424	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* Karn Stiegelmeier. < > And do you need me to spell it and -- okay. K-a-r-n, S-t-i-e-g-e-l-m-e-i-e-r. And then do you need the address? It's the same as Gary's. Summit County Commissioners, Summit County. Do you need more information? < > Okay. < > Okay. I would like to thank you again for having this public hearing here in Summit County, because at first we were left out. I'd like to talk about what I see as serious flaws in the DEIS. To begin, the stated purpose of the project, in the EIS, is to develop 18,000 acre-feet of annual firm yield to the Moffat Treatment Plant and from the raw water customers upstream of the Moffat Treatment Plant. This is an artificially narrow purpose. It assumes that a new reservoir must be built, and it's not a reasonable starting point. Secondly, under the Blue River Decree these raw water customers outside the City and County of Denver are not in the legal service area for the Blue -- for Blue River water, so it's highly questionable to consider this a valid purpose. And the EIS must analyze alternatives. A number of reasonable and obvious alternatives, that do not have impact on the Blue River and the West Slope, have not been considered. These alternatives can provide for more than the stated need of 18,000 acre-feet of additional water. Conservation, reuse, and other storage can meet this need of 18,000 acre-feet. Denver stated, in its '02 IRP, Integrated Resource Plan, that it expects an additional 39,000 acre-feet by 2045 by customers placing inefficient faucets, toilets, and other fixtures. The EIS includes only 24,000 acre-feet of savings by 2030. And clearly some incentives could bring the replacement gains to Denver stated -- Denver's stated 39,000 acre-feet 15 years sooner. So that would create 13,000 acre-feet of less demand. The EIS demand estimate states 16,000 acre-feet reduction in demand due to conservation by 2030; however, Denver Water has already committed to achieving 29,000 acre-feet of reduction in demand by conservation by 2016. So that's an additional 13,000 acre-feet not being considered in the EIS.	***Comment #505-1*** *(ID 346)**:*** *I'd like to talk about what I see as serious flaws in the DEIS. To begin, the stated purpose of the project, in the EIS, is to develop 18,000 acre-feet of annual firm yield to the Moffat Treatment Plant and from the raw water customers upstream of the Moffat Treatment Plant. This is an artificially narrow purpose. It assumes that a new reservoir must be built, and it's not a reasonable starting point.* **Response #505-1:** The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations.

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	The Blue River Decree requires reuse before using more Blue River water. Indirect potable reuse is excluded as a realistic alternative, without any factual basis. Other neighboring communities already use this technology, including Aurora in its Prairie Water Project. The EIS fails to consider 20,000 acre-feet of firm yield available to Denver in dry years with Denver's participation in the WISE, Water Infrastructure and Supply Efficiency, project; partnering with Denver, Aurora, and South Metro. The EIS fails to consider Denver's availability -- Denver's ability to use ground-water as emergency supply, thereby negating the need for the 30,000 acre-feet of water in the strategic water reserve. The purpose of the project is to provide 18,000 acre-feet of firm yield. And I've listed a total of 15,000 acre-feet, replacement of water fixtures; 13,000 acre-feet through conservation measures that Denver's already committed to; 20 to 30,000 feet in the WISE partnership; 30,000 acre-feet of strategic water reserve; a grand total of 78,000 acre-feet that has not been realistically considered as an alternative in the EIS. I think it's unreasonable that the Blue River Basin and the West Slope should suffer economic and environmental consequences of losing this water, when the EIS has not even considered these alternatives. Thank you. And Bob French, Commissioner Bob French, is next.	***Comment #505-2*** *(ID 347)**:*** *Secondly, under the Blue River Decree these raw water customers outside the City and County of Denver are not in the legal service area for the Blue -- for Blue River water, so it's highly questionable to consider this a valid purpose.* **Response #505-2:** Under the Blue River Decree, Denver Water may provide Blue River water for municipal purposes within the Denver Metropolitan area, which is defined as an area reasonably integrated with the development of Denver. Denver Water's raw water customers are within the Denver Metropolitan area and use the raw water for municipal purposes. As part of the CRCA, Denver Water agreed to limit its use of its existing water rights, including the water rights under the Moffat Project, to a defined geographic area with certain exceptions contained in the agreement. Denver Water's raw water customers are either within the defined geographic service area or fall within the exceptions. For a description of the CRCA, see FEIS Section 4.3.1. ***Comment #505-3*** *(ID 348)**:*** *And the EIS must analyze alternatives. A number of reasonable and obvious alternatives, that do not have impact on the Blue River and the West Slope, have not been considered. These alternatives can provide for more than the stated need of 18,000 acre-feet of additional water. Conservation, reuse, and other storage can meet this need of 18,000 acre-feet. Denver stated, in its '02 IRP, Integrated Resource Plan, that it expects an additional 39,000 acre-feet by 2045 by customers placing inefficient faucets, toilets, and other fixtures. The EIS includes only 24,000 acre-feet of savings by 2030. And clearly some incentives could bring the replacement gains to Denver stated -- Denver's stated 39,000 acre-feet 15 years sooner. So that would create 13,000 acre-feet of less demand. The EIS demand estimate states 16,000 acre-feet reduction in demand due to*

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		conservation by 2030; however, Denver Water has already committed to achieving 29,000 acre-feet of reduction in demand by conservation by 2016. So that's an additional 13,000 acre-feet not being considered in the EIS. **Response #505-3:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. Conservation and Reuse Denver Water has committed to implement the programs necessary to realize 16,000 AF of conservation savings by 2032 and an additional 13,000 AF of conservation savings (total 29,000 AF) from 2032 to the build-out of the service area. As a demonstration of its commitment to conservation, Denver Water assumes that the 29,000 AF would be realized. In addition to this commitment, Denver Water has already subtracted the 29,000 AF from its demand projections. A summary of Denver Water's planned conservation and replacement savings can be found in FEIS Table 1-1. Water conservation is part of the solution for water supply projects. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and

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		Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Alternatives that were formulated that include reuse to varying degrees are Alternatives 6, 7, 8, 10, 11, and 14; therefore, almost 50 percent (%) of the alternatives formulated included some component of reuse. These alternatives were configured to meet a portion or all of the new firm yield requirement with reusable effluent. Alternatives 6a and 6b are specifically indirect potable reuse alternatives. Alternatives 7, 8, 10, 11, and 14 are variations of indirect potable reuse alternatives that involve treating reusable water, storing it, and delivering it back to the Moffat Collection System. The primary difference between these alternatives and 6a and 6b is that treated reusable water is not stored in Gross, Ralston, or Leyden Gulch reservoirs and blended with other supplies prior to treatment at the Moffat Water Treatment Plant (WTP). Storage for reusable supplies in Alternatives 7, 8, 10, and 11 is provided at new gravel pits or deep aquifer storage. Alternatives 6, 7, and 14 were screened in the Cost Screen (Screen 1C) because they had high relative cost indices primarily due to the high cost of advanced water treatment and residual disposal. Alternative 11 was also screened because it was determined after further evaluation that sufficient unused reusable effluent supplies were not available to meet the entire firm yield requirement of 18,000 AF/yr. Therefore, even if Alternatives 6, 7, and 14 were not screened out for cost, they would be screened out because there are not sufficient unused reusable supplies available to meet the entire firm yield requirement of 18,000 AF/yr. Alternatives 8a and 10a, which include indirect potable reuse to meet 5,000 AF/yr

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		of the firm yield requirement, were evaluated as EIS alternatives. The treatment costs were considerably lower for these alternatives because only a portion of the firm yield requirement would be met with indirect potable reuse, therefore, they passed the Cost Screen. The amount of indirect potable reuse included in Alternatives 8a and 10a was based on an evaluation of the amount of gravel pit storage potentially available and available unused reusable effluent. Approximately 7,600 AF/yr on average of unused reusable water would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. Alternatives 8a and 10a, which provide 5,000 AF/yr of the new firm yield requirement from reusable supplies were considered reasonable and achievable given the variability in timing and amount of unused reusable supplies available. As part of Denver Water's obligation to reuse water under the Blue River decree, Denver Water currently uses its reusable supplies for exchanges, augmentation, contract deliveries, and its non-potable system to the extent they can in combination with gravel pit storage. Any remaining unused reusable effluent, which is primarily available in the winter months, was considered for inclusion in reuse alternatives. ***Comment #505-4*** *(ID 349)**:*** *The Blue River Decree requires reuse before using more Blue River water. Indirect potable reuse is excluded as a realistic alternative, without any factual basis. Other neighboring communities already use this technology, including Aurora in its Prairie Water Project. The EIS fails to consider 20,000 acre-feet of firm yield available to Denver in dry years with Denver's participation in the WISE, Water Infrastructure and Supply Efficiency, project; partnering with Denver, Aurora, and South Metro. The EIS fails to consider Denver's availability -- Denver's ability to use ground-water as emergency*

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		supply, thereby negating the need for the 30,000 acre-feet of water in the strategic water reserve. **Response #505-4:** There is currently insufficient information available to incorporate the Water Infrastructure and Supply Efficiency (WISE) Project in Denver Water's PACSM because a variety of possible scenarios are being considered and evaluated by the Project proponents. A qualitative evaluation of this Project was added to FEIS Section 4.6.1, which describes the purpose of the Project, the participants, and generally how it would operate. While WISE would have participation from several water providers, WISE would use, in part the same water (unused Denver Water reusable effluent) as Moffat Project Alternatives 8a and 10a and various aquifers in the regions to store water similar to Alternative 10a. The partnership between Denver Water, Aurora, and the South Metro Water Supply Authority would make use of excess reusable water as it becomes available from time to time. When available, and on a space available basis, the excess reusable water would be pumped from the lower South Platte River (north of Denver) to water users upstream (south of Denver). The WISE project makes use of the same reusable water considered for Alternatives 8a and 10a, and other alternatives considered in the DEIS. While the WISE project could provide Denver Water some firm yield, it does not deliver water to where Denver Water needs the extra supply (north end). Alternatives 8a and 10a did deliver this water to north end and are considered practicable alternatives in this EIS. Denver Water has "up to" 40,000 AF of excess reusable effluent. In some years, Denver Water has 0 AF of excess reusable effluent. On average, Denver Water has 8,000 AF on average of excess reusable effluent – this is the amount used when developing Alternatives 8a and 10a for the DEIS.

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		The need for the 30,000 AF safety factor (i.e., Strategic Water Reserve) is described in Appendix A of the DEIS (Review of Denver Water's Integrated Resources Plan (IRP), p. 11 and Supplemental Evaluation of Denver Water Demand Projections, pgs. 13-15). As stated, the safety factor is intended to protect against a host of uncertainties, including the constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. A safety factor is a commonly accepted practice for major water utilities. All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's System supply and reduces the amount of water diverted from other components of the system. The main sources of reusable water in Denver Water's Collection System are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek System (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Littleton–Englewood (Bi-City) Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's

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		customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,500 AF/yr. Refer to FEIS Section 1.3.1 (Subheading Non-Potable Recycling Facility). ***Comment #505-5*** *(ID 350)**:*** *The purpose of the project is to provide 18,000 acre-feet of firm yield. And I've listed a total of 15,000 acre-feet, replacement of water fixtures; 13,000 acre-feet through conservation measures that Denver's already committed to; 20 to 30,000 feet in the WISE partnership; 30,000 acre-feet of strategic water reserve; a grand total of 78,000 acre-feet that has not been realistically considered as an alternative in the EIS. I think it's unreasonable that the Blue River Basin and the West Slope should suffer economic and environmental consequences of losing this water, when the EIS has not even considered these alternatives.* **Response #505-5:** Please see the Response to Comment Identification (ID) 349.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #506 Bob French, County Commissioner Summit County	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* I am he, Bob French, Summit County Commissioner, 208 East Lincoln, Breckenridge, 80424. My comments will also center on what I see as some deficiencies in the DEIS. I'll start out with, in the interest of full disclosure, saying, you know, I haven't read it all. I haven't read the health bill before the United States Congress, either, but I have some information on what's in it and not in it. And the same for the DEIS. As mentioned by some others, the document does not either include or identify supporting information, materials which would permit an adequate evaluation of its conclusions. If you Google "404 Permit, Criteria for the Issuance of," right off the bat you find your article written by a member of the U.S. Army Corps of Engineers a few years ago, which lists 21 factors to be considered in determining whether a project is in the public interest. That determination, that a project is in the public interest, is the ultimate criterion which must be satisfied in issuing a 404 permit. I'll list a few of those factors which seem particularly relevant to the consideration of the Moffat Project. Some of them have been mentioned by Gary and by Karn before. I won't go into them in detail. Anticipated impacts of the project on fish and wildlife. The stretch of Blue River from Dillon Dam to its concourse with the Colorado is a Gold Medal Fishery. Flows in the Blue will face significant reduction, which will harm that fishery. This issue is not addressed in the DEIS. Karn mentioned recreation. The boating and fishing on which Summit's tourist industry depends in the summer, not considered. Water supply and conservation, no analysis of the impacts of the Moffat Diversion on the cost and availability of water for existing and future West Slope customers. What about the existing limitations, legal limitations, on the location of use and the reuse requirements in the Blue River Decree? Although 55 years old, that's still part of the law of the river. Not considered in the DEIS. Under the Blue River Decree, the U.S. Army Corps of Engineers is a trustee for Summit County and the West Slope. There's a fiduciary duty involved, in that appointment, to apply these and other criteria in any consideration of an application 404 permit. That duty does not appear to be discharged by the DEIS. The finding that the issuance is in the public interest is not supported by the evidence in that document. Thank you.	***Comment #506-1** (ID 351)**:*** *My comments will also center on what I see as some deficiencies in the DEIS. I'll start out with, in the interest of full disclosure, saying, you know, I haven't read it all. I haven't read the health bill before the United States Congress, either, but I have some information on what's in it and not in it. And the same for the DEIS. As mentioned by some others, the document does not either include or identify supporting information, materials which would permit an adequate evaluation of its conclusions. If you Google "404 Permit, Criteria for the Issuance of," right off the bat you find your article written by a member of the U.S. Army Corps of Engineers a few years ago, which lists 21 factors to be considered in determining whether a project is in the public interest. That determination, that a project is in the public interest, is the ultimate criterion which must be satisfied in issuing a 404 permit.* **Response #506-1:** The decision whether to issue a permit is based on an "evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest" (33 CFR 320.4[a]). Per 33 CFR 320.4, General Policies for Evaluating Permit Applications, the Corps solicits input from the public in order to better evaluate the detriments and benefits of a project to the public. When the Corps acts on the permit application it considers comments received as well as any Responses the applicant may submit to the Corps. The major tools used to interact with the public are the public notice and public hearing. The public notice is the primary method of advising all interested parties of a proposed activity for which a permit is sought and of soliciting comments and information necessary to evaluate the probable beneficial and detrimental impacts on the public interest. Public notices are used to announce hearings. Public notices on proposed projects always contain a statement that anyone commenting may request a public hearing.

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		Public hearings are held if comments raise substantial issues which cannot be resolved informally and the Corps decision maker determines that information from such a hearing is needed to make a decision (see 33 CFR 327). Four public hearings were held for the Moffat Project: • December 1, 2009 – Boulder Country Club, Boulder, Colorado • December 2, 2009 – The Inn at Silver Creek, Granby, Colorado • December 3, 2009 – Double Tree Hotel, Denver, Colorado • January 7, 2010 – Beaver Run Conference Center, Breckenridge, Colorado Comments were recorded verbatim by a court reporter during the hearings. Comments were also obtained from the public via mail, fax, and email. Comments are made part of the record, and they will be considered in determining whether it would be in the public interest to proceed with this action. ***Comment #506-3*** *(ID 352)**:*** *Anticipated impacts of the project on fish and wildlife. The stretch of Blue River from Dillon Dam to its concourse with the Colorado is a Gold Medal Fishery. Flows in the Blue will face significant reduction, which will harm that fishery. This issue is not addressed in the DEIS.* **Response #506-3:** The statement that this section of the Blue River was not addressed in the DEIS is not correct. DEIS Sections 3.9, 4.9 and 5.9 (FEIS Sections 3.11, 4.6.11, and 5.11) discuss the fish and benthic invertebrate resources of the Blue River and evaluated impacts to habitat with PHABSIM for the section of the river between Dillon and Green Mountain reservoirs.

Comment Information	Comment	Comments and Responses
		Comment #506-4 *(ID 353)**:*** *Karn mentioned recreation. The boating and fishing on which Summit's tourist industry depends in the summer, not considered.* **Response #506-4:** Impacts to boating and fishing along the Blue River and at Dillon Reservoir were discussed in DEIS Section 4.13. ***Comment #506-5*** *(ID 354)**:*** *Water supply and conservation, no analysis of the impacts of the Moffat Diversion on the cost and availability of water for existing and future West Slope customers. What about the existing limitations, legal limitations, on the location of use and the reuse requirements in the Blue River Decree? Although 55 years old, that's still part of the law of the river. Not considered in the DEIS.* **Response #506-5:** A discussion of the effects to Grand County water providers can be found in DEIS Section 4.17. Denver Water would, as it has in the past, continue to follow all limitations on the Blue River Decree. PACSM (Denver Water's hydrology model) accounts for the limitations in all of Denver Water's decrees. Thus, any limitations specified in the Blue River Decree were taken into consideration when projecting future hydrology and operating rules. DEIS Section 2.3.3 describes the proposed changes to Denver Water's System operations with the enlarged Gross Reservoir (Proposed Action). ***Comment #506-2*** *(ID 355)**:*** *Under the Blue River Decree, the U.S. Army Corps of Engineers is a trustee for Summit County and the West Slope. There's a fiduciary duty involved, in that appointment, to apply these and other criteria in any consideration of an application 404 permit. That duty*

Comment Information	Comment	Comments and Responses
		does not appear to be discharged by the DEIS. The finding that the issuance is in the public interest is not supported by the evidence in that document. **Response #506-2:** Under the Blue River Decree, Denver Water may provide Blue River water for municipal purposes within the Denver Metropolitan area, which is defined as an area reasonably integrated with the development of Denver. Denver Water's raw water customers are within the Denver Metropolitan area and use the raw water for municipal purposes. As part of the CRCA, Denver Water agreed to limit its use of its existing water rights including the water rights under the Moffat Project to a defined geographic area with certain exceptions contained in the agreement. Denver Water's raw water customers are either within the defined geographic service area or fall within the exceptions. For a description of the CRCA, see FEIS Section 4.3.1.

Comment Information	Comment	Comments and Responses
Comment #507 Barney White, Water Counsel Summit County	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* Thank you, Mr. Franklin. I'm not sure this is on. < > Okay. Well, I'm Barney White, B-a-r-n-e-y, W-h-i-t-e, 1999 Broadway, Suite 3200, Denver, Colorado 80220. As Gary said, I am water counsel for Summit County. Thank you very much for holding this hearing in Summit County. I think it is very important for the folks in this room to get a more complete understanding of the project and the impacts of the project in the counties. I'm going to talk, during my three minutes, about the no-action alternative, because, frankly, I think a lot of folks in Summit County are confused by that. And I don't think that the Draft EIS does an appropriate analysis of what a no-action alternative would be. The first thing to keep in mind is that the -- under the no-action alternative, what the Corps or its consultants assume that Denver will do is to dip into its strategic water reserve. Now, we've never known where the strategic water reserve is, but in the no-action alternative, at least some of it appears in Dillon Reservoir. And the way that Denver obtains additional yield, under the no-action alternative, is to release water from the strategic water reserve. Well, there's several things that are wrong with that approach. First, that isn't the purpose of Denver's strategic water reserve, what used to be called the safety factor. It's never been intended to support normal expected growth and demand, and it is that demand that is being satisfied in the no-action alternative. Second, the strategic water reserve wasn't used in the preferred alternative or the other action alternatives. So it really isn't an apples-to-apples comparison. The apparent conclusion that the no-action alternative would result in greater impacts in the Blue River is false, because the rules of the game have changed in the no-action alternative. Now the strategic water reserve is on the table, where it never has been before. Second, using the strategic water reserve, and diverting water through the Roberts Tunnel from that source, doesn't accomplish the purpose and need of the project. In fact, it has no bearing on the purpose and need of the project as it's defined by the Corps. It doesn't provide water to the Moffat Treatment Plant. It doesn't increase the reliability of the plant. And it doesn't satisfy the deficit in the supply to the raw water contracts, all of which are on the north end of the system. The no-action alternative is meaningful only if it relates to the purpose of the project. What would Denver do if it couldn't have the Moffat Project? What would it do to achieve those goals? Well, it's unrealistic to assume that Denver wouldn't implement some of the 303 projects that are identified and were rejected in the EIS. Denver would	***Comment #507-2*** *(ID 356)**:*** *I'm going to talk, during my three minutes, about the no-action alternative, because, frankly, I think a lot of folks in Summit County are confused by that. And I don't think that the Draft EIS does an appropriate analysis of what a no-action alternative would be. The first thing to keep in mind is that the -- under the no-action alternative, what the Corps or its consultants assume that Denver will do is to dip into its strategic water reserve. Now, we've never known where the strategic water reserve is, but in the no-action alternative, at least some of it appears in Dillon Reservoir. And the way that Denver obtains additional yield, under the no-action alternative, is to release water from the strategic water reserve. Well, there's several things that are wrong with that approach. First, that isn't the purpose of Denver's strategic water reserve, what used to be called the safety factor. It's never been intended to support normal expected growth and demand, and it is that demand that is being satisfied in the no-action alternative. Second, the strategic water reserve wasn't used in the preferred alternative or the other action alternatives. So it really isn't an apples-to-apples comparison. The apparent conclusion that the no-action alternative would result in greater impacts in the Blue River is false, because the rules of the game have changed in the no-action alternative. Now the strategic water reserve is on the table, where it never has been before.* **Response #507-2:** Please see the Response to Comment ID 357. The need for 18,000 AF/yr of new water supply and 16,000 AF/yr of additional conservation is to meet a future projected demand of 34,000 AF/yr (refer to FEIS Section 1.4). The Corps assumes, under the No Action Alternative, that Denver Water would not meet the future demand of Arvada (3,000 AF/yr) and Denver Water's need for new supply would be 15,000 AF/yr, and the Strategic Water Reserve is not used to support projected

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	certainly try to capture some of the savings from natural replacement and conservation that Karn Stiegelmeier identified; and which, by the way, are underdisclosed in the Environmental Impact Statement. I see I'm out of time. We'll submit additional written comments. Thank you.	increases in demand. Instead, like the other action alternatives, the Strategic Water Reserve would be used in years when available supply could not meet existing demand. If the proposed action is not permitted, Denver Water would have a water supply that is less reliable as demand would exceed supply. This would increase the occurrences of Denver Water placing its customers on mandatory restrictions and would increase the likelihood that Denver Water would need to use its Strategic Water Reserve as Denver Water's water supply would be more sustainable to droughts and other unplanned emergencies. Please see description of No Action Alternative in Section 2.10 of the DEIS. ***Comment #507-1*** *(ID 357)**:*** *Second, using the strategic water reserve, and diverting water through the Roberts Tunnel from that source, doesn't accomplish the purpose and need of the project. In fact, it has no bearing on the purpose and need of the project as it's defined by the Corps. It doesn't provide water to the Moffat Treatment Plant. It doesn't increase the reliability of the plant. And it doesn't satisfy the deficit in the supply to the raw water contracts, all of which are on the north end of the system.* **Response #507-1:** The No Action Alternative is not required to meet the Purpose and Need. Instead, it is an alternative which results in no construction requiring a Corps Section 404 Permit. It may be brought by (1) Denver Water electing to modify its proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 CFR 1502.14(d)) and Section 404 Regulations (33 CFR 325 Appendix B.9.b(5)(b)). The need for the 30,000 AF safety factor (i.e., Strategic Water Reserve) is described in Appendix A of the DEIS (Review of Denver Water's IRP, p. 11 and Supplemental

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		Evaluation of Denver Water Demand Projections, pgs. 13-15). As stated, the safety factor is intended to protect against a host of uncertainties, including the constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. Reviews of other water utilities in the nation were conducted as part of the development of the Purpose and Need. Results of these reviews show that it is a reasonable and prudent practice for a utility the size of Denver Water to maintain a water supply reserve of 8% to 12% of installed supply. Denver Water's 30,000 AF safety factor is about 8% of its supply. If a portion of this safety factor were used to solve the Moffat Collection System problems a like amount would have to be simultaneously constructed to maintain the existing protection. Therefore, the safety factor should not be included as a component in the action alternatives evaluated in the EIS. These risks are not accounted for in the firm yield modeling and calculations, nor are they considered in the water demand projections. The safety factor must be held apart from the derivation of the 18,000 AF shortfall to appropriately reflect the risks which occur outside the models, methods and procedures to calculate that need. The purpose of the Moffat Project is not to build a Strategic Water Reserve in the North System in addition to the existing 30,000 AF Strategic Water Reserve. However, the additional storage helps balance North and South systems water storage. The amount of Strategic Water Reserve stored in each reservoir in Denver

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		Water's System varies depending on hydrologic conditions and the severity of the drought. By adding storage to the North System, a portion of the Strategic Water Reserve could be stored in an enlarged Gross Reservoir because more water would be stored in the North System prior to dry-year sequences. Modeling of the No Action Alternative shows that none of the Strategic Water Reservoir is available to the North System at times during the critical drought period because storage capacity is limited at Gross Reservoir. At the end of the critical drought period, Gross Reservoir is empty and the Strategic Water Reserve is located entirely in Denver Water's South System reservoirs. ***Comment #507-3*** *(ID 358)**:*** *The no-action alternative is meaningful only if it relates to the purpose of the project. What would Denver do if it couldn't have the Moffat Project? What would it do to achieve those goals? Well, it's unrealistic to assume that Denver wouldn't implement some of the 303 projects that are identified and were rejected in the EIS. Denver would certainly try to capture some of the savings from natural replacement and conservation that Karn Stiegelmeier identified; and which, by the way, are underdisclosed in the Environmental Impact Statement.* **Response #507-3:** The No Action Alternative is one which results in no construction requiring a Corps Section 404 Permit. It may be brought by (1) Denver Water electing to modify its proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 CFR 1502.14(d)) and Section 404 Regulations (33 CFR 325 Appendix B.9.b(5)(b)).The EIS compares the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps required that Denver Water develop an alternative

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		that did not require a Corps permit, yet did manage supply and demand to meet 15,000 AF/yr of supply. Since it is unrealistic to assume no future growth would occur and unrealistic that Denver Water would implement no changes to meet future water supply needs, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. The Corps believes the steps outlined for various restriction scenarios were a reasonable approach for developing the No Action Alternative. The Corps did evaluate some of the numerous preliminary alternatives that were screened as possible components of the No Action Alternative. Refer to DEIS Section 2.10.2. The Corps believes the steps outlined for various restriction scenarios were a reasonable approach for developing the No Action Alternative. Furthermore, the No Action Alternative is what an applicant would do without obtaining a Federal permit. In the case of the Moffat Project, the Federal Action is a 404 Permit. The other alternatives listed in the FEIS would likely need some type of Federal approval. Thus, they are not practicable No Action Alternatives.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #508 Lurline Underbrink Curran, County Manager Grand County	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* That's all right. I can go to the back. < > My name is Lurline Underbrink Curran; L-u-r-l-i-n-e, U-n-d-e-r-b-r-i-n-k C-u-r-r-a-n. I'm the county manager for Grand County, and I'm here to speak on behalf of the Grand County Commissioners. First of all, I would like to say, Grand County totally supports all of the comments that were made by Summit County. We believe they are more than appropriate and should be strongly considered by the U.S. Army Corps of Engineers. As Manager Martinez referred, we are in negotiations with Denver Water, and have been for quite some time. We are very hopeful that those negotiations will proof -- prove fruitful; but if they do not, the mitigation offered in the EIS is troubling to us and, we believe, not sufficient to address the impacts. The resource in Grand County is impacted by not only the Moffat Diversion, but by the CBT Project and by the Windy Gap Project. Therefore, the resource of the Fraser River and the Colorado River are at a tipping point. If the EIS is correct in its impacts, which is stated to be negligible, then perhaps the resource will not crash. If it is not correct in its assumptions and that resource crashes, it is a detriment to the entire state of Colorado, but more particularly Grand County. Grand County and Summit County are the most impacted counties in the state by transmountain diversions; therefore, they should be -- any impact to those resources should be strongly looked at and should be -- we should be certain that the mitigation proposed is appropriate to the impacts that are -- are stated. And we should look at what has happened in the past, in order to bring the resource to a critical level. Grand County has invested in a stream management plan. It is totally scientific based. We believe it should be used as one of the criteria to judge the -- against the impacts of the Moffat Firming Project. My last point is, if the EIS is taken and it goes through to a record of decision, with the mitigation that is proposed, what if all the assumptions that are made are not correct? These are assumptions based on futuristic projections. If they are not correct and the resource crashes, what is to be done then? The Colorado River is the lifeline of Colorado and many states below us, and it is imperative that, if the assumptions that are made are not correct in the future, there has to be a way to go back and fix the Colorado River and the Fraser River, and we hope that the Corps of Engineers will take that into consideration. Thank you for your time.	***Comment #508-2** (ID 390):* *As Manager Martinez referred, we are in negotiations with Denver Water, and have been for quite some time. We are very hopeful that those negotiations will proof -- prove fruitful; but if they do not, the mitigation offered in the EIS is troubling to us and, we believe, not sufficient to address the impacts. The resource in Grand County is impacted by not only the Moffat Diversion, but by the CBT Project and by the Windy Gap Project. Therefore, the resource of the Fraser River and the Colorado River are at a tipping point. If the EIS is correct in its impacts, which is stated to be negligible, then perhaps the resource will not crash. If it is not correct in its assumptions and that resource crashes, it is a detriment to the entire state of Colorado, but more particularly Grand County. Grand County and Summit County are the most impacted counties in the state by transmountain diversions; therefore, they should be -- any impact to those resources should be strongly looked at and should be -- we should be certain that the mitigation proposed is appropriate to the impacts that are -- are stated. And we should look at what has happened in the past, in order to bring the resource to a critical level.* **Response #508-2:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor.

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		DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Comment #508-3*** *(ID 392)**:*** *Grand County has invested in a stream management plan. It is totally scientific based. We believe it should be used as one of the criteria to judge the -- against the impacts of the Moffat Firming Project.* **Response #508-3:** The Grand County Stream Management Plan has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following resources: water quality (Sections 3.2 and 4.6.2), geomorphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), PHABSIM data for analysis of aquatic biological resources (Sections 3.11, 4.6.11, and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15). ***Comment #508-1*** *(ID 393)**:*** *My last point is, if the EIS is taken and it goes through to a record of decision, with the mitigation that is proposed, what if all the assumptions that are made are not correct? These are assumptions based on futuristic projections. If they are not correct and the resource crashes, what is to be done then? The Colorado River is*

Comment Information	Comment	Comments and Responses
		the lifeline of Colorado and many states below us, and it is imperative that, if the assumptions that are made are not correct in the future, there has to be a way to go back and fix the Colorado River and the Fraser River, and we hope that the Corps of Engineers will take that into consideration. **Response #508-1:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. If issued, a Section 404 Permit would include a statement that the Corps can re-evaluate and re-condition the Section 404 Permit as conditions warrant.

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Comment #509 Zach Margolis, Utility Manager Town of Silverton	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* Good evening. My name is Zach Margolis. I work for the Town of Silverthorn as utility manager. 601 Center Circle Drive, Silverthorn, Colorado 80498. Zach Margolis; Z-a-c-h, M-a-r-g-o-l-i-s. The Town of Silverthorn has enjoyed an excellent working relationship with Denver Water over the years. Their participation in our trails and stream restoration projects and their communications about potential flooding and flow projections are all very much appreciated. Silverthorn is not taking a position for or against the project. However, we support the written comments that you'll be receiving from the County, the Summit Water Quality Committee, and the QQ Committee of Northwest Cog. We'd like to offer the following additional comments, I may be restating some you've heard already, about the Draft EIS. No impacts to fishing were identified in the DEIS. Significant consideration should be given to the fact that the Blue River, from Dillon Dam to the confluence of the Colorado River, is a Gold Medal Stream. The report indicates that spring flows and other high-flow events will be reduced in this reach of the Blue River. These flushing flows are crucial to the aquatic life and overall health of the stream and are needed to maintain the Gold Medal Fishery designation. These flows also support our recreational boating industry. The EIS identifies average monthly releases from Dillon Reservoir that rarely, if at all, go below 50 cfs. The DEIS implies that Denver Water does not intend to reduce flows below 50 cfs, although they have the ability to do so in certain circumstances. When flows out of Dillon Reservoir drop below 50 cfs, there's a potential for significant impacts to the fishery, and there would be very costly impacts to Silverthorn/Dillon Joint Sewer Authority's Blue River Wastewater Treatment Plant. Since the DEIS concludes the impacts would be negligible, the 404 permit conditions should hold the project to that conclusion by requiring the daily releases from Dillon Reservoir to not drop below 50 cfs. Thank you very much.	***Comment #509-3*** *(ID 394)**:*** *Silverthorne is not taking a position for or against the project. However, we support the written comments that you'll be receiving from the County, the Summit Water Quality Committee, and the QQ Committee of Northwest Cog.* **Response #509-3:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #509-1*** *(ID 395)**:*** *No impacts to fishing were identified in the DEIS. Significant consideration should be given to the fact that the Blue River, from Dillon Dam to the confluence of the Colorado River, is a Gold Medal Stream. The report indicates that spring flows and other high-flow events will be reduced in this reach of the Blue River. These flushing flows are crucial to the aquatic life and overall health of the stream and are needed to maintain the Gold Medal Fishery designation. These flows also support our recreational boating industry.* **Response #509-1:** Impacts to boating and fishing along the Blue River were discussed in DEIS Section 4.13. No specific parameters regarding flushing flows as a criterion for Gold Medal water designation are provided by the Colorado Wildlife Commission Policy #D-6, Wild and Gold Medal Trout Management. Any impacts to the fisheries habitat as a result of reduced flushing flows caused by the Proposed Action were addressed in DEIS Section 4.9.1. ***Comment #509-2*** *(ID 396)**:*** *The EIS identifies average monthly releases from Dillon Reservoir that rarely, if at all, go below 50 cfs. The DEIS implies that Denver Water does not intend to reduce flows below 50 cfs, although they have the ability to do so in certain circumstances. When flows out of Dillon*

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		Reservoir drop below 50 cfs, there's a potential for significant impacts to the fishery, and there would be very costly impacts to Silverthorne/Dillon Joint Sewer Authority's Blue River Wastewater Treatment Plant. Since the DEIS concludes the impacts would be negligible, the 404 permit conditions should hold the project to that conclusion by requiring the daily releases from Dillon Reservoir to not drop below 50 cfs. **Response #509-2:** Denver Water's ability to reduce bypass flows below Dillon Reservoir is pursuant to their right-of-way (ROW) agreement with the U.S. Forest Service (USFS) (see DEIS Section 3.1.5.4), which is part of their current system and operations. Denver Water may reduce bypass flows whenever mandatory restrictions are imposed on the use of water in the area served by Denver Water due to insufficient water supply. Although Denver Water has the ability to reduce bypass flows below Dillon Reservoir, they have not exercised that right to date in Response to water use restrictions imposed on their customers. Denver Water has had to reduce the outflow from Dillon Reservoir below 50 cfs for temporary periods in the past for maintenance, repairs or construction on associated water facilities. The Moffat Project could potentially reduce Denver Water's need to reduce bypass flows below Dillon Reservoir because the Moffat Project would increase Denver Water's water supply and the reliability of their system in which case restrictions may be imposed less frequently. Since there is no indication that reductions in Dillon Reservoir bypass flows would increase under the Proposed Action, a Section 404 Permit condition requiring daily releases from Dillon Reservoir to not drop below 50 cfs would not be required by the Corps since this is not an effect of the Proposed Action that requires mitigation.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #510 Michael Penny, Representative Town of Frisco	*01-07-2010 Public Hearing Commenter (Beaver Run Resort)* Thank you, Mr. Franklin. My name is Michael Penny, P-e-n-n-y. I'm representing the Town of Frisco. One Main Street, Frisco, Colorado 80443. First of all, I'd like to support the comments as specifically from Summit County and the Town of Silverthorn that you just heard from, and make you aware that we are also part of the negotiations, the ongoing negotiations, with Denver Water. Specifically, I think there are a couple comments I want to make relative to the DEIS, and specifically there's no discussion of tourism or businesses that rely on tourism, and no socioeconomic impacts that were discussed in the DEIS, as well as were not evaluated. And if you're not aware, the Town of Frisco and, I believe, Summit County and the other – both municipalities in Summit County and, most likely, in Eagle County have spent a significant amount of local public tax dollars on addressing the mountain pine beetle. So it's not an issue that we're trying to pass off or say it's insignificant. We believe that it needs to be addressed in the DEIS. Then for Frisco in particular, increased diversions through the Robert Tunnels -- the Robert Tunnel will occur during the months of May through September. These are the exact months that the town relies on lake levels for the marina and summer recreation for Dillon Reservoir. If the Frisco Marina was unable to fully operate, there would be serious socio- and economic impacts to the town. And as I stated, these impacts have not been considered within the DEIS. And both for the -- these next two are, I think, relevant, both for the Town of Frisco as well as the Town of Dillon, with reservoir -- with the marinas. With reservoir levels being drawn down during summer months, the DEIS should have better evaluated air quality implications. As sailors know well, the winds on and around Dillon Reservoir are intense at times; and as we saw in 2002, the new leads for the shoreline produces a considerable amount of dust. This dust not only has air quality implications, but also threatens water quality in Dillon Reservoir, which increases phosphorous and particulate. As stated in the DEIS, the Clean Air Act requires states to treat the Class 1 areas with the most stringent degree of protection from future degradation of air quality. While the DEIS recognizes the Eagle's Nest Wilderness as a Class 1 Wilderness Area in close proximity to the project area, the DEIS does fail to acknowledge the potential air quality impacts that could occur in Eagle's Nest Wilderness as a result of reduced lake levels that can cause considerable amount of dust, resulting in particulate pollution. Air quality impacts need to be appropriately identified and mitigation clearly outlined in the DEIS. And, finally, the DEIS does not take into consideration wastewater treatment plants that discharge into Dillon Reservoir. Fluctuating lake levels could lead to treatment plants needing to do extensive upgrades in order to comply with current regulations, both current and future. These added costs should not fall on the discharge, and the DEIS needs to evaluate such implications. Thank you for your time.	***Comment #510-1*** *(ID 397)**:*** *First of all, I'd like to support the comments as specifically from Summit County and the Town of Silverthorne that you just heard from, and make you aware that we are also part of the negotiations, the ongoing negotiations, with Denver Water.* **Response #510-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #510-5*** *(ID 398)**:*** *Specifically, I think there are a couple comments I want to make relative to the DEIS, and specifically there's no discussion of tourism or businesses that rely on tourism, and no socioeconomic impacts that were discussed in the DEIS, as well as were not evaluated.* **Response #510-5:** Section 3.17.5.6 of the FEIS includes a description of Grand County's tourism economy, including the impacts of tourism spending. However, the description was expanded in the FEIS to further address the number of tourism related businesses in the county. Section 5.19 of the FEIS addresses socioeconomic impacts to Grand County businesses and residents. This text has been expanded for the FEIS as appropriate and applicable to provide clarification of impact conclusions. ***Comment #510-3*** *(ID 399)**:*** *And if you're not aware, the Town of Frisco and, I believe, Summit County and the other – both municipalities in Summit County and, most likely, in Eagle County have spent a significant amount of local public tax dollars on addressing the mountain pine beetle. So it's not an issue that we're trying to pass off or say it's insignificant. We believe that it needs to be addressed in the DEIS.*

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		Response #510-3: Potential long-term effects of the pine beetle are many; however, the Moffat Project does not influence or impact the pine beetle epidemic. DEIS Section 4.1 (FEIS Section 5.1) under the subheading Sediment Supply explains how pine beetle could impact the Fraser River System. Additional water quality analysis was also performed on the Fraser River and Three Lakes related to nutrients (FEIS Sections 4.6.2 and 5.2). Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in the FEIS (Sections 4.6.7.1 and 5.7.1.1). In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a 5-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects will take place around and upstream of Denver Water reservoirs. Restoration also will help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Refer to Appendix G for a description of the Forests to Faucets Partnership and other cooperative efforts. ***Comment #510-2*** *(ID 400)**:*** *Then for Frisco in particular, increased diversions through the Robert Tunnels -- the Robert Tunnel will occur during the months of May through September. These are the exact months that the town relies on lake levels for the marina and summer recreation for Dillon Reservoir. If the Frisco Marina was unable to fully operate, there would be serious socio- and economic impacts to the town. And as I stated, these impacts have not been considered within the DEIS.*

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		Response #510-2: As Denver Water's demand grows in the future, Denver Water would divert additional water from the Blue River via its Roberts Tunnel Collection System. The hydrologic effects of these diversions, including flow reductions in the Blue River and fluctuations of lake levels in Dillon Reservoir, were evaluated and are presented in DEIS Chapter 4 in Sections 4.1.1.2 and 4.1.1.1, respectively. A discussion of fluctuating reservoir levels and their impacts on the usability of boat ramps at Dillon Reservoir was provided in DEIS Section 4.13.6.1. This analysis was expanded in FEIS Section 5.15 o reflect the number of days the boat ramps at Dillon Reservoir would be inoperable due to low water levels. ***Comment #510-4*** *(ID 401)**:*** *And both for the -- these next two are, I think, relevant, both for the Town of Frisco as well as the Town of Dillon, with reservoir -- with the marinas. With reservoir levels being drawn down during summer months, the DEIS should have better evaluated air quality implications. As sailors know well, the winds on and around Dillon Reservoir are intense at times; and as we saw in 2002, the new leads for the shoreline produces a considerable amount of dust. This dust not only has air quality implications, but also threatens water quality in Dillon Reservoir, which increases phosphorous and particulate. As stated in the DEIS, the Clean Air Act requires states to treat the Class 1 areas with the most stringent degree of protection from future degradation of air quality. While the DEIS recognizes the Eagle's Nest Wilderness as a Class 1 Wilderness Area in close proximity to the project area, the DEIS does fail to acknowledge the potential air quality impacts that could occur in Eagle's Nest Wilderness as a result of reduced lake levels that can cause considerable amount of dust, resulting in particulate pollution. Air quality impacts need to be appropriately identified and mitigation clearly outlined in the DEIS.*

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		Response #510-4: The Colorado Department of Public Health and Environment (CDPHE) is required to protect Class I areas, and in its Air Quality Control Commission Report to the Public 2008-2009 (CDPHE 2008), this issue is addressed as follows: "We [i.e., CDPHE] are also working to develop and adopt plans to reduce air pollutant emissions that obscure visibility in our National Parks and Wilderness Areas and have adopted several measures to improve visibility under the requirements of the Federal regional haze program. Emission reductions from major sources of sulfur dioxide and oxides of nitrogen will be considered next year to help achieve this goal. Impaired visibility is a regional air quality issue that will require emission reductions from numerous sources across broad regions of the country. We are working within the state as well as with other western states to reach this objective." For stationary sources, the Clean Air Act (CAA) provides for protection of Class I areas through the New Source Review preconstruction permitting programs (CAA Section 160-173). The air quality permit requirements and pollutant control measures that the Project would need to comply with are addressed in FEIS Section 5.13.7. A Corps' Section 404 Permit, if issued for one of the Moffat EIS alternatives, will require that construction activities conform to Colorado State Air Quality standards. As shown in FEIS Appendix H, Dillon Reservoir would be approximately 1 foot higher to 3 feet lower, on average, as a result of the Project (based on a comparison against Full Use of the Existing System). However, the No Action Alternative would lower Dillon Reservoir up to 7 feet compared to Full Use of the Existing System. Dillon Reservoir would be approximately 4 to 11 feet lower, on average, with the Project compared to Current Conditions (2006). The change in water levels would be

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		greater compared to Current Conditions due to the effects of other reasonably foreseeable future actions in combination with the Project. ***Comment #510-6*** *(ID 402)**:*** *And, finally, the DEIS does not take into consideration wastewater treatment plants that discharge into Dillon Reservoir. Fluctuating lake levels could lead to treatment plants needing to do extensive upgrades in order to comply with current regulations, both current and future. These added costs should not fall on the discharge, and the DEIS needs to evaluate such implications.* **Response #510-6:** Additional evaluation of the discharge permits for wastewater treatment plants on Dillon Reservoir has been performed. Please refer to FEIS Sections 4.6.2 and 5.2.

Comment Information	Comment	Comments and Responses
Comment #515 James Newberry, County Commissioner Grand County	*12-02-2009 Public Hearing Commenter(Inn at Silver Creek)* Is this working okay? James Newberry; J-a-m-e-s, N-e-w-b-e-r-r-y; [redacted] And I'm here representing Grand County. What we are most concerned with in Grand County are the effects of the additional diversions that will be happening, especially with the rising hydrograph, taking off the top of the hydrograph, and taking the Fraser River down to, basically, a year -- every year, a drought year. That's our -- that's our main concern. Commissioner Stuart will be addressing more of those issues as it concerns the Moffat and the Windy Gap Firming Project. What I would like to talk about is the process of mitigation, outside of the mitigation that's already been proposed and that you had up on your displays back here. And those are negotiations that are ongoing with Denver Water and Northern Water Conservancy District. To their credit, they are not only looking at the impacts of the firming projects that are on the table now, but also looking at some of the past projects and how we can enhance or make the streams and rivers in Grand County better now than they were when we started this process. If we could do that, that's -- that's somewhat of a win for -- for both of us. Grand County's main focus is protecting the resource, and it is the water that we are trying to protect. So if we can work together in that and have the Corps of Engineers, which, I understand, is also involved in the Windy Gap Firming Process and the 404 part, but your being the lead agency here, tying those two together. And if we could come up with a plan that works well for all of us; if we could incorporate that and have that or at least have -- have you there at the table to help pull that plan into place, and either working through IGAs or some type of incorporating into the permitting, making sure that we have something that we can put in; as much as we can, look down into the future and protect this resource for as long as we can, because that is our ultimate goal here. So I will yield the rest of my time to Commissioner Stuart, who will talk about the cumulative impacts.	***Comment #515-1*** *(ID 522)**:*** *What we are most concerned with in Grand County are the effects of the additional diversions that will be happening, especially with the rising hydrograph, taking off the top of the hydrograph, and taking the Fraser River down to, basically, a year -- every year, a drought year. That's our -- that's our main concern.* **Response #515-1:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however,

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		the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the ROW agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated Response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams'

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		predicted Response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #515-2*** *(ID 523)**:*** *What I would like to talk about is the process of mitigation, outside of the mitigation that's already been proposed and that you had up on your displays back here. And those are negotiations that are ongoing with Denver Water and Northern Water Conservancy District. To their credit, they are not only looking at the impacts of the firming projects that are on the table now, but also looking at some of the past projects and how we can enhance or make the streams and rivers in Grand County better now than they were when we started this process. If we could do that, that's -- that's somewhat of a win for -- for both of us. Grand County's main focus is protecting the resource, and it is the water that we are trying to protect. So if we can work together in that and have the Corps of Engineers, which, I understand, is also involved in the Windy Gap Firming Process and the 404 part, but your being the lead agency here, tying those two together. And if we could come up with a plan that works well for all of us; if we could incorporate that and have that or at least have -- have you there at the table to help pull that plan into place, and either working through IGAs or some type of incorporating into the permitting, making sure that we have something that we can put in; as much as we can, look down into the future and protect this resource for as long as we can, because that is our ultimate goal here.* **Response #515-2:** The Corps will include specific mitigation measures that are enforceable through a Section 404 Permit, if issued. CDPHE will also include specific water quality mitigation measures that are enforceable through a Section 401

Comment Information	Comment	Comments and Responses
		Certification. The U.S. Fish and Wildlife Service (USFWS) will include specific requirements to protect threatened and endangered species that are enforceable through a Biological Opinion (BO). In addition, Denver Water has entered into three agreements that would enhance the existing environment and provide additional protections: CRCA, Learning by Doing (LBD) Cooperative Effort, and Fish and Wildlife Enhancement Plan, copies of which are provided in FEIS Appendix M. Each of these plans will be implemented through permanent agreements between the parties. The Corps will consider these agreements, along with all "reasonably foreseeable future actions" in its decision process regarding the proposed Moffat Project. These agreements are not intended to mitigate the impacts of the proposed Project; instead, the purpose is to improve existing conditions of aquatic environments in the Colorado River Basin should Gross Reservoir be enlarged.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #517 Gary Bumgarner, County Commissioner Grand County	*12-02-2009 Public Hearing Commenter(Inn at Silver Creek)* No, I'm Gary Bumgarner. I'm the third commissioner. < > I'm not on the list. < > You don't. I didn't put one in. My spelling is B-u-m-g-a-r-n-e-r. I'd like to give a little history. I'm a fourth-generation rancher, or my family is. I guess I'm only fourth generation of that. But before these water projects started in the Kremmling area, when my mother was a little girl, you couldn't -- she lived up the Blue River. She couldn't go to Kremmling in -- probably from the middle of June, first of June, to sometime in July, because that whole valley was covered with water. So my point is, there is very much of a cumulative impact. At one time that river run free and full. Some of our ranchers, here in the back, that's how they irrigated. And as each one of these projects has come to pass, the water table has dropped farther and farther. We have a rancher here. I don't know if he's going to talk tonight. But where he hays, he goes down in holes far enough down that he can't see out. If you go down by the highway, you can't see him down there haying. So we've got project after project, and it's a cumulative impact. And I would ask that Northern and Denver projects, that you look at that together and see what's happened with that. We have moss growing in the river, where farmers can't get their water out, that they're adjudicated. And those -- those issues need to be addressed. And I appreciate the Corps taking the fair and objective view in hearing all sides of that. Yes, Denver needs water, but Grand County needs to be made whole. And I think we're starting from a negative point, so some of the past seems to need to be rectified. I appreciate your time. < > Sure.	***Comment #517-1*** *(ID 531)**:*** *I'd like to give a little history. I'm a fourth-generation rancher, or my family is. I guess I'm only fourth generation of that. But before these water projects started in the Kremmling area, when my mother was a little girl, you couldn't -- she lived up the Blue River. She couldn't go to Kremmling in -- probably from the middle of June, first of June, to sometime in July, because that whole valley was covered with water. So my point is, there is very much of a cumulative impact. At one time that river run free and full. Some of our ranchers, here in the back, that's how they irrigated. And as each one of these projects has come to pass, the water table has dropped farther and farther. We have a rancher here. I don't know if he's going to talk tonight. But where he hays, he goes down in holes far enough down that he can't see out. If you go down by the highway, you can't see him down there haying. So we've got project after project, and it's a cumulative impact. And I would ask that Northern and Denver projects, that you look at that together and see what's happened with that. We have moss growing in the river, where farmers can't get their water out, that they're adjudicated. And those -- those issues need to be addressed. And I appreciate the Corps taking the fair and objective view in hearing all sides of that. Yes, Denver needs water, but Grand County needs to be made whole. And I think we're starting from a negative point, so some of the past seems to need to be rectified.* **Response #517-1:** The Corps notes the comment.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #529 Judy Burke, Mayor Town of Grand Lake	*12-02-2009 Public Hearing Commenter(Inn at Silver Creek)* My name is Judy Burke. That's spelled J-u-d-y, B-u-r-k-e. My residence is at [redacted] I'm here this evening representing the Town of Grand Lake. I am their mayor. Our citizens have already this evening expressed most of the interests that I believe the town of Grand Lake has in this project, and that is that this project is not good for Grand County. It depletes our streams. It adds nutrient -- nutrients to our waters. And it is making the largest natural lake in Colorado a sludge bed. It's because we have algae, it's because of the reduced stream flows, that we are experiencing these problems. Grand Lake is a crown jewel, as has already been said, of Colorado; not only of Grand County, but the entire citizenry of Colorado. And they need to be concerned that it is being depleted. But I speak, too, from the heart about what it's doing to our community. We are a small community of 469 permanent residents. Many of our second-home owners, of which we have about 80 percent of our population, come from the Front Range. What will they do if our lakes are so polluted that they cannot recreate in our area? But this degradation of the lakes and the water in Grand County also affects our quality of life. You have already heard, this evening, of the people who have been around Grand Lake for many, many years. I've only been here 33 years, and some day I'll get into the newcomers club. But this degradation also affects our – our economy. Our economy is tourist based, and when the tourists refuse to come to Grand Lake because of the quality of the water, then our economy suffers. Our health suffers because we cannot use the waters of Grand Lake. Grand Lake is a jewel. It is something to be protected and to be kept for future generations. Thank you. < > Um-hmm.	***Comment #529-1*** *(ID 561)**:*** *Our citizens have already this evening expressed most of the interests that I believe the town of Grand Lake has in this project, and that is that this project is not good for Grand County. It depletes our streams. It adds nutrient -- nutrients to our waters. And it is making the largest natural lake in Colorado a sludge bed. It's because we have algae, it's because of the reduced stream flows, that we are experiencing these problems. Grand Lake is a crown jewel, as has already been said, of Colorado; not only of Grand County, but the entire citizenry of Colorado. And they need to be concerned that it is being depleted.* **Response #529-1:** Additional water quality analysis has been performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #529-2*** *(ID 562)**:*** *But I speak, too, from the heart about what it's doing to our community. We are a small community of 469 permanent residents. Many of our second-home owners, of which we have about 80 percent of our population, come from the Front Range. What will they do if our lakes are so polluted that they cannot recreate in our area? But this degradation of the lakes and the water in Grand County also affects our quality of life. You have already heard, this evening, of the people who have been around Grand Lake for many, many years. I've only been here 33 years, and someday I'll get into the newcomers club. But this degradation also affects our – our economy. Our economy is tourist based, and when the tourists refuse to come to Grand Lake because of the quality of the water, then our economy suffers. Our health suffers because we cannot use the waters of Grand Lake. Grand Lake is a jewel. It is something to be protected and to be kept for future generations.* **Response #529-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment Information	Comment	Comments and Responses
Comment #531 Michael R. Wageck, Manager Winter Park Water and Sanitation District	*12-02-2009 Public Hearing Commenter(Inn at Silver Creek)* MICHAEL R. WAGECK: Good evening. First of all, I'd like to thank everybody for coming out tonight. This is a big deal. It's an important meeting. < > Sorry. < > MICHAEL R. WAGECK: Okay. My name's Michael R. Wageck, Michael, middle initial R, last name W-a-g-e-c-k. Can you hear me? Can you hear me? < > Do I need to start again? < > Okay. I've been involved in this or at least tracking this project since the beginning, about four or five years. And initially the Army Corps of Engineers said that there was no issues to Grand County or the Fraser River, there was no impacts, because there was no construction over there; there were no impacts to Grand County. Our county government had to jump up and down, scream and holler, just to get a place at the table. And looking at the Draft EIS right now, I see that there's still minimal or no impacts listed to the Fraser River. Now, the Fraser River's already in trouble. We have temperature problems, low flows, all kinds of things, so how can you take more water and say that there's -- there's no impacts? I believe the year 2016, using that as a baseline, doesn't really make a lot of sense. The baseline should be like 1900, before any of these diversions took place, and see how much the water in the river's been impacted since then. As a manager of the water and sanitation district, I find myself looking for the same things that Denver Water's looking for in this project: More water, more reliability, more flexibility. I think those are the things that they say is the purpose and need, in the Draft EIS. Now, Denver Water's offered up a bunch of -- several enhancements, or I think they used the term "mitigations," and they list the things that they felt that can help the Fraser River. Now, I'll bet many of you haven't heard much about that. But Denver is saying, if they -- you know, we can work out a deal on these enhancements, then we should not, you know, argue about the project and let the project go ahead.	***Comment #531-3*** *(ID 564)**:*** *Okay. I've been involved in this or at least tracking this project since the beginning, about four or five years. And initially the Army Corps of Engineers said that there were no issues to Grand County or the Fraser River, there was no impacts, because there was no construction over there; there were no impacts to Grand County. Our county government had to jump up and down, scream and holler, just to get a place at the table. And looking at the Draft EIS right now, I see that there's still minimal or no impacts listed to the Fraser River. Now, the Fraser River's already in trouble. We have temperature problems, low flows, all kinds of things, so how can you take more water and say that there's -- there's no impacts? I believe the year 2016, using that as a baseline, doesn't really make a lot of sense. The baseline should be like 1900, before any of these diversions took place, and see how much the water in the river's been impacted since then.* **Response #531-3:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other reasonably foreseeable future actions based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's System when the Moffat Project is completed and in full use in 2032. This

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	Not that I don't trust Denver Water, but -- but these -- you know, these enhancements are not tied to your permitting process, right? They're not listed in the Draft EIS. They're not part of the process. And I'd like you guys to hold up giving this permit, issuing this permit, until we have an agreement with Denver Water for these enhancements. Now, we're kind of stuck between a rock and a hard place here. We do have a river that's hurting right now. You want to take more water from it. And if we don't get these enhancements, the no-action alternative is going to be even worse. The no-action alternatives is the worse thing that can happen to the Fraser, while taking more water and be on restrictions and cut into the bypass levels, and we'll have even less water. The river's in danger right now, so it doesn't make sense that we could completely take the water out of the river without causing any kind of impacts that need to be made. We're going to be putting -- my district's going to be putting together a written comments on this project. We only have until January 28th. I'd like to ask you to stand down. You know, we have to have hunting season and Christmas, all that in this 90 days. I'm sure that wasn't thought about when you thought this out. But anyway, I just want to have these enhancements agreement with Denver, these enhancements that'll help us with our river, before this project proceeds. That's all I have. Thanks everybody again.	scenario reflects each action alternative in combination with other reasonably foreseeable future actions. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes reasonably foreseeable future actions including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032). The evaluation of total environmental effects due to proposed Moffat Project and other reasonably foreseeable actions was based on a comparison with modeled Current Conditions, which reflects the current administration of the river, demands, infrastructure, and operations. It is not appropriate to evaluate the effects of future Moffat Project diversions based on comparisons with historical information or conditions as they existed before any water diversions occurred because demands have changed considerably over the course of the study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. To

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		provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System and each of the Moffat Project alternatives. ***Comment #531-1*** *(ID 565)**:*** *As a manager of the water and sanitation district, I find myself looking for the same things that Denver Water's looking for in this project: More water, more reliability, and more flexibility. I think those are the things that they say is the purpose and need, in the Draft EIS.* **Response #531-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. The Purpose and Need for the Moffat Project consists of: (1) meeting a water supply shortfall of 18,000 AF (i.e., the portion that conservation would not meet), (2) improving reliability in the north end of the system to avoid closure of water treatment plants, and (3) reducing vulnerability by balancing the water supplies in the North and South systems. ***Comment #531-5*** *(ID 566)**:*** *Now, Denver Water's offered up a bunch of -- several enhancements, or I think they used the term "mitigations," and they list the things that they felt that can help the Fraser River. Now, I'll bet many of you haven't heard much about that. But Denver is saying, if they -- you know, we can work out a deal on these enhancements, then we should not, you know, argue about the project and let the project go ahead. Not that I don't trust Denver Water, but -- but these -- you know, these enhancements are not tied to your permitting process, right? They're not listed in the Draft EIS. They're not part of the process. And I'd like you guys to hold up*

Comment Information	Comment	Comments and Responses
		giving this permit, issuing this permit, until we have an agreement with Denver Water for these enhancements. But anyway, I just want to have these enhancements agreement with Denver, these enhancements that'll help us with our river, before this project proceeds. **Response #531-5:** The Corps will include specific mitigation measures that are enforceable through a Section 404 Permit, if issued. CDPHE will also include specific water quality mitigation measures that are enforceable through a Section 401 Certification. The USFWS will include specific requirements to protect threatened and endangered species that are enforceable through a BO. In addition, Denver Water has entered into three agreements that would enhance the existing environment and provide additional protections: CRCA, LBD Cooperative Effort, and Fish and Wildlife Enhancement Plan, copies of which are provided in FEIS Appendix M. Each of these plans will be implemented through permanent agreements between the parties. The Corps will consider these agreements, along with all “reasonably foreseeable future actions” in its decision process regarding the proposed Moffat Project. These agreements are not intended to mitigate the impacts of the proposed Project; instead, the purpose is to improve existing conditions of aquatic environments in the Colorado River Basin should Gross Reservoir be enlarged. ***Comment #531-4*** *(ID 567)**:*** *Now, we're kind of stuck between a rock and a hard place here. We do have a river that's hurting right now. You want to take more water from it. And if we don't get these enhancements, the no-action alternative is going to be even worse. The no-action alternatives is the worst thing that can happen to the Fraser, while taking more water and be on restrictions and cut into the bypass levels, and we'll have even less water. The river's in danger right now, so it doesn't make sense that we could completely take the water out of the river without causing any kind of impacts that need to be made.*

Comment Information	Comment	Comments and Responses
		Response #531-4: The Corps notes the comment. The No Action Alternative is one which results in no construction requiring a Corps Section 404 Permit. It may be brought by (1) Denver Water electing to modify its proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 CFR 1502.14(d)) and Section 404 Regulations (33 CFR 325 Appendix B.9.b(5)(b)).The EIS compares the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps required that Denver Water develop an alternative that did not require a Corps permit, yet did manage supply and demand to meet 15,000 AF/yr of supply. Since it is unrealistic to assume no future growth would occur and unrealistic that Denver Water would implement no changes to meet future water supply needs, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. The Corps believes the steps outlined for various restriction scenarios were a reasonable approach for developing the No Action Alternative. ***Comment #531-2*** *(ID 568)**:*** *We're going to be putting -- my district's going to be putting together written comments on this project. We only have until January 28th. I'd like to ask you to stand down. You know, we have to have hunting season and Christmas, all that in this 90 days. I'm sure that wasn't thought about when you thought this out.* **Response #531-2:** The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on

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		October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #542 Lurline Underbrink Curran, County Manager Grand County	*12-02-2009 Public Hearing Commenter(Inn at Silver Creek)* My name is Lurline Underbrink Curran; L-u-r-l-i-n-e, U-n-d-e-r-b-r-i-n-k, C-u-r-r-a-n. I'm the county manager of Grand County, and I've been working on water issues in Grand County for over 25 years now. You heard the commissioner speak when we first started, and you need to know that they've been running a parallel course on both of these projects. We've made some very hard comments on the Windy Gap Project. We intend to make comments on the Moffat Project also. The commissioners have spent an inordinate amount of your tax dollars to hire professionals who know how to dig through these mountains of paperwork and to present comments that are applicable to the process. And the process is very narrow. You have to provide comments that are applicable to the process. I wanted to say that there isn't -- hasn't been a lot said about the enhancement. These two projects have allowed Grand County to come to the table with the Denver Water Board, actually the Denver Water Board and the municipal subdistrict. There are enhancements on the table that will address some of the concerns that have been heard this evening. There are also the stream management plan, which over a million dollars of your tax money has been paid to produce that scientifically based stream management plan, which has flush and flows, which has mitigation efforts in there that will improve the stream. At least that is the commissioners' goal, to improve the stream. We would like to make sure that the Corps knows about the stream management plan and understands that it is an essential component to what the county is looking for if these projects were to go forward. I want to remind everyone here, and it's been a concern to the county from day one, the no-action alternatives actually take more water at times than some of the alternatives that are proposed. That's frightening because we have no say in the no-action alternative. So I just want to make that clear. The commissioners are at the table, in negotiations that, in my whole history with the county, we have never been able to have. There are enhancements on the table that, if are fruitful and if the projects do go forward, may make the streams, and that is our hope, better than they are today. That -- that is the goal of the commissioners. We hope that the Corps of Engineers will join in with us on the stream management plan and see how essential that is to not only the Moffat Project, but the Windy Gap Firming Project. We are looking at them as cumulative impacts, whether they're shown like that in the EIS or not. That's why the commissioners have hired the professionals that they've hired.	***Comment #542-3*** *(ID 598)**:*** *You heard the commissioner speak when we first started, and you need to know that they've been running a parallel course on both of these projects. We've made some very hard comments on the Windy Gap Project. We intend to make comments on the Moffat Project also. The commissioners have spent an inordinate amount of your tax dollars to hire professionals who know how to dig through these mountains of paperwork and to present comments that are applicable to the process. And the process is very narrow. You have to provide comments that are applicable to the process. I wanted to say that there isn't -- hasn't been a lot said about the enhancement. These two projects have allowed Grand County to come to the table with the Denver Water Board, actually the Denver Water Board and the municipal subdistrict. There are enhancements on the table that will address some of the concerns that have been heard this evening. The commissioners are at the table, in negotiations that, in my whole history with the county, we have never been able to have. There are enhancements on the table that, if are fruitful and if the projects do go forward, may make the streams, and that is our hope, better than they are today.* **Response #542-3:** The Corps notes the comment. ***Comment #542-4*** *(ID 599)**:*** *There are also the stream management plan, which over a million dollars of your tax money has been paid to produce that scientifically based stream management plan, which has flush and flows, which has mitigation efforts in there that will improve the stream. At least that is the commissioners' goal, to improve the stream. We would like to make sure that the Corps knows about the stream management plan and understands that it is an essential component to what the county is looking for if these projects were to go forward.*

Comment Information	Comment	Comments and Responses
	Grand Lake is a huge concern to the commissioners, and we do want to see strategies that clear up Grand Lake back to what it was like when people first came here and the clarity was there. So just as a wrap-up, I want the Corps to understand, we've given many comments, we've allowed to be a full operating agency, we've been commenting all along. Our comments haven't always been taken, but we still give them. And we hope to be able to work with the Corps and be able to come up with something that protects all of the water resources in Grand County and, in fact, enhances them. That's the goal. Thank you. And thank you for everyone coming this evening.	**Response #542-4:** The Grand County Stream Management Plan has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following resources: water quality (Sections 3.2 and 4.6.2), geomorphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), PHABSIM data for analysis of aquatic biological resources (Sections 3.11, 4.6.11, and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15). Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required, including Adaptive Management for mitigation. ***Comment #542-2*** *(ID 600)**:*** *I want to remind everyone here, and it's been a concern to the county from day one, the no-action alternatives actually take more water at times than some of the alternatives that are proposed. That's frightening because we have no say in the no-action alternative. So I just want to make that clear.* **Response #542-2:** The Corps notes the comment. ***Comment #542-1*** *(ID 602)**:*** *That -- that is the goal of the commissioners. We hope that the Corps of Engineers will join in with us on the stream management plan and see how essential that is to not only the Moffat Project, but the Windy Gap Firming Project. We are looking at them as cumulative impacts, whether they're shown like that in the EIS or not. That's why the commissioners have hired the professionals that they've hired. Grand Lake is a huge concern to the commissioners, and we do want to see strategies that clear up Grand Lake back to what it was like when people first came here and the clarity was there. So just*

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Comment Information	Comment	Comments and Responses
		as a wrap-up, I want the Corps to understand, we've given many comments, we've allowed to be a full operating agency, we've been commenting all along. Our comments haven't always been taken, but we still give them. And we hope to be able to work with the Corps and be able to come up with something that protects all of the water resources in Grand County and, in fact, enhances them. That's the goal. **Response #542-1:** The Corps notes the comment and appreciates Grand County participating as a Consulting Agency in the NEPA process for the Moffat Project.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #543 Judy Burke, Mayor Town of Grand Lake	*12-03-2009 Public Hearing Commenter (Doubletree Denver)* Thank you for the opportunity to speak again, this evening. I would like to let you know that I do represent the citizens of the Town of Grand Lake. My name is Judy Burke. That's J-u-d-y, B-u-r-k-e. My address is [redacted] And as I've mentioned, I do represent the citizens of the Grand Lake community. I would like to start out by saying that this is a very bad project for the citizens of Grand Lake, for many reasons; one of the reasons being that this project will affect negatively the community of Grand Lake and the people that live there. The clear blue waters of Grand Lake have now turned green because of the projects that have taken place that affect our lakes. This project will certainly increase the nutrient concentration from lower stream flows in our county. Our county depends on its water for its tourism-based economy. This will be negatively affected by this project. It also affects the health of those people who live around the -- the lake itself. Grand Lake, being a small community of 469 people, has a great frontage on Grand Lake, which will be affected by the degradation of the quality of the water in that water body. Most of you know, especially those of you who are citizens of Colorado, or have been for very long, Grand Lake is the largest natural lake in Colorado. We can ill afford to let this lake be degradated and the quality of the water and the clarity of this water to be reduced. Grand Lake depends on a tourism-based economy. If this lake should degradate much more, we are going to start losing that visitation that many of the Front Range people enjoy coming to Grand Lake to take part in. I would ask, on behalf of the citizens of the Town of Grand Lake, that the 45-day extension be granted so that everyone in our -- in our community that may wish to do so has an opportunity to review this particular project. I would also ask, on behalf of our citizens, that the two water quality projects that will affect the quality of our water, that being the Windy Gap Project and also the Moffat Project, be considered as one, because the results are the same from these two projects; and that, again, is the killing of Grand Lake. Thank you.	***Comment #543-4*** *(ID 603)**:*** *I would like to start out by saying that this is a very bad project for the citizens of Grand Lake, for many reasons; one of the reasons being that this project will affect negatively the community of Grand Lake and the people that live there.* **Response #543-4:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #543-2*** *(ID 604)**:*** *The clear blue waters of Grand Lake have now turned green because of the projects that have taken place that affect our lakes. This project will certainly increase the nutrient concentration from lower stream flows in our county. Our county depends on its water for its tourism-based economy. This will be negatively affected by this project. It also affects the health of those people who live around the -- the lake itself. Grand Lake, being a small community of 469 people, has a great frontage on Grand Lake, which will be affected by the degradation of the quality of the water in that water body. Most of you know, especially those of you who are citizens of Colorado, or have been for very long, Grand Lake is the largest natural lake in Colorado. We can ill afford to let this lake be de-gradated and the quality of the water and the clarity of this water to be reduced. Grand Lake depends on a tourism-based economy. If this lake should de-gradate much more, we are going to start losing that visitation that many of the Front Range people enjoy coming to Grand Lake to take part in.* **Response #543-2:** Additional water quality analysis has been performed on the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2.

Comment Information	Comment	Comments and Responses
		Comment #543-3 *(ID 608)**:*** *I would also ask, on behalf of our citizens, that the two water quality projects that will affect the quality of our water, that being the Windy Gap Project and also the Moffat Project, be considered as one, because the results are the same from these two projects; and that, again, is the killing of Grand Lake.* **Response #543-3:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Comment #543-1*** *(ID 607)**:*** *I would ask, on behalf of the citizens of the Town of Grand Lake, that the 45-day extension be granted so that everyone in our -- in our community that may wish to do so has an opportunity to review this particular project.*

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Comment Information	Comment	Comments and Responses
		Response #543-1: The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #544 Gary Bumgarner, County Commissioner Grand County	*12-03-2009 Public Hearing Commenter (Doubletree Denver)* I'd like to thank you for the opportunity to speak to you tonight. My name is Gary Bumgarner, G-a-r-y, B-u-m-g-a-r-n-e-r. I'm a Grand County commissioner and a fourth-generation rancher in the Grand County area. I'd like to make a couple points. The first one, I would echo what the mayor said as far as the two projects need to be combined. If your house is on fire and you've got two bedrooms, it seems like you would same time instead of separately. It's -- it's, I guess, incomprehensible to me that we take these projects as a vacuum and that they don't interrelate to each other. Also, another 45 days seems a very small amount of time when you're dealing with over 2,000 pages of commentary. Let's take the time to research it and get it right. I would also ask you to hold the two parties that are negotiating, or however many parties you want to call it that are negotiating, to hold your Permit in abeyance until an agreement comes forward. I've been a commissioner for three years. We started this process just after I became a commissioner, I believe, in February. We hired a mediator. And it seems like, in the past six months or even three months, things have been progressing forward. And I think a lot of that has to do with both entities are trying to get their permits approved, and I think that your organization is bringing that to pass. So I would ask you to wait on that permit until the negotiations reach fruitful experience or both parties want to go and have a different outcome. I appreciate your coming up to Grand County last night and allowing the citizens to have their input. And have happy holidays.	***Comment #544-2*** *(ID 609)**:*** *I'd like to make a couple points. The first one, I would echo what the mayor said as far as the two projects need to be combined. If your house is on fire and you've got two bedrooms, it seems like you would same time instead of separately. It's -- it's, I guess, incomprehensible to me that we take these projects as a vacuum and that they don't interrelate to each other.* **Response #544-2:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT System. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. ***Comment #544-1*** *(ID 610)**:*** *Also, another 45 days seems a very small amount of time when you're dealing with over 2,000 pages of commentary. Let's take the time to research it and get it right.*

Comment Information	Comment	Comments and Responses
		Response #544-1: The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days. ***Comment #544-0*** *(ID 611)**:*** *I would also ask you to hold the two parties that are negotiating, or however many parties you want to call it that are negotiating, to hold your Permit in abeyance until an agreement comes forward. I've been a commissioner for three years. We started this process just after I became a commissioner, I believe, in February. We hired a mediator. And it seems like, in the past six months or even three months, things have been progressing forward. And I think a lot of that has to do with both entities are trying to get their permits approved, and I think that your organization is bringing that to pass. So I would ask you to wait on that permit until the negotiations reach fruitful experience or both parties want to go and have a different outcome.* **Response #544-0:** The Corps has complied and will comply with all Federal regulations for the preparation of the described EIS and

Comment Information	Comment	Comments and Responses
		evaluation of the Section 404 Permit application, including adherence to adequate review of pertinent factors and appropriate timelines for EIS and Section 404 Permit preparation. It is the Corps' understanding that the parties have reached an agreement and it was considered by the Corps when preparing this EIS. Please see FEIS Section 4.3 for a description of the CRCA.

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Comment Information	Comment	Comments and Responses
Comment #546 Peter Fogg, County Commissioner Boulder County, Land Use Department	*12-03-2009 Public Hearing Commenter (Doubletree Denver)* Thank you. My name is Peter Fogg. I'm with the Boulder County Land Use Department, and I'm here to speak on behalf of the Boulder County commissioners, who met today to discuss the Draft EIS and the Permit information I've received to date. I'd like to echo Grand County's concern, as well as Grand Lake and others. We feel that the minimum 45-day extension for comment on both those documents is appropriate. If it could be extended further than that, that would be more than welcome. They're massive documents. There's a lot of information there to absorb. We feel, as the county that will be the recipient, as it were, of whatever impacts or burdens come from this project on the East Slope, both the short term and in the long term, that it's appropriate to grant this extension so that Boulder County has the opportunity to look at many of the cumulative impacts that have been discussed generally in the DEIS. We have done a preliminary review of both the DEIS and the Permits applications. There are a number of issues that we have discussed with Denver Water, starting in 2008, regarding this project, as well as some concerns and some questions that will be raised that we don't feel have been adequately addressed for us to be able to make good policy decisions, both from a public standpoint and an environmental standpoint, to -- to provide good input to this process. Some of the those issues include the transportation analyses, carbon footprint issues, air quality issues, the loss of habitat around Gross Reservoir, the question of the burden being borne by those who are going to be recipients of this water rather than those who will be affected by the project and what their role is in this process, and several other particular issues. We do feel that it's appropriate, again, to extend the hearing process to allow those of us who will be bearing the physical and long-term impacts to have an opportunity to provide you with better information. Thank you.	***Comment #546-1*** *(ID 616)**:*** *I'd like to echo Grand County's concern, as well as Grand Lake and others. We feel that the minimum 45-day extension for comment on both those documents is appropriate. If it could be extended further than that, that would be more than welcome. They're massive documents. There's a lot of information there to absorb. We feel, as the county that will be the recipient, as it were, of whatever impacts or burdens come from this project on the East Slope, both the short term and in the long term, that it's appropriate to grant this extension so that Boulder County has the opportunity to look at many of the cumulative impacts that have been discussed generally in the DEIS. We do feel that it's appropriate, again, to extend the hearing process to allow those of us who will be bearing the physical and long-term impacts to have an opportunity to provide you with better information.* **Response #546-1:** The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days.

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		Comment #546-2 *(ID 617)**:*** *We have done a preliminary review of both the DEIS and the Permits applications. There are a number of issues that we have discussed with Denver Water, starting in 2008, regarding this project, as well as some concerns and some questions that will be raised that we don't feel have been adequately addressed for us to be able to make good policy decisions, both from a public standpoint and an environmental standpoint, to -- to provide good input to this process. Some of the those issues include the transportation analyses, carbon footprint issues, air quality issues, the loss of habitat around Gross Reservoir, the question of the burden being borne by those who are going to be recipients of this water rather than those who will be affected by the project and what their role is in this process, and several other particular issues.* **Response #546-2:** Transportation The Corps acknowledges that there would be delays caused by slow-moving construction vehicles on County Road (CR) 77S, State Highway (SH) 72, SH 93, SH 128, U.S. Highway (US) 287, Arapahoe Road (US 287 bypass to County Line Road), County Line Road and CR 2050. During construction, the volume of construction traffic could vary day-to-day and month-to-month, depending on the type and number of construction activities taking place. Based on preliminary construction plans, about 22 haul and supply trucks could travel to Gross Dam each day on average. During the peak construction period, about 35 trucks could deliver material daily. Additional trucks could be used to remove trees and debris from the reservoir site at the appropriate time. The number of commuting workers could vary considerably. An average of 60 commuter vehicles could make daily trips to Gross Reservoir, with about 100 expected on the busiest construction days. Denver Water would require contractors to encourage carpooling to the work site.

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		Denver Water met with the Colorado Department of Transportation (CDOT) to discuss the potential increase in truck traffic on SH 72 during construction as well as options for managing and mitigating the Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including constructing and/or improving turnouts on SH 72 for slow-moving traffic. Carbon Footprint Greenhouse gas emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in FEIS Section 5.13. The calculations include on-road exhaust emissions from worker commuter vehicles, delivery trucks, and all other Project construction equipment. Detailed emission calculation spreadsheets and references are presented in FEIS Appendix I. Wildlife Habitat Loss of habitat to various types of wildlife including elk was addressed in DEIS Section 4.7. The Corps has consulted with USFWS and Colorado Parks and Wildlife (formerly Colorado Division of Wildlife) to ensure compliance with wildlife protection regulations (e.g., Endangered Species Act, Fish and Wildlife Coordination Act, Migratory Bird Treaty Act) and by identifying appropriate mitigation measures to minimize and avoid impacts to wildlife. Corps Public Interest Review As stated in 33 CFR Part 320, which are, in part, the Federal regulations governing the Corps' review of Section 404 of the CWA, the decision whether to issue a Section 404 Permit is based on an evaluation of the probable impacts of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of important resources. Factors relevant to the proposed Project that are considered in the public interest include conservation,

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		economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #548 Shanna Koenig, Representative Northwest Colorado Council of Governments	*12-03-2009 Public Hearing Commenter (Doubletree Denver)* Hi, my name is Shanna Koenig, and it's S-h-a-n-n-a, K-o-e-n-i-g. Do you need my physical address? I'm here representing Northwest Colorado Council of Governments, who has been the regional 208 agency since 1976. I did speak in Boulder a couple of nights ago, but there are a few additional points that I would like to make. First, on behalf of our members, we support a 45-day extension to allow our members adequate time to review the DEIS. Next, we would like to point out that the Purpose and Need is too narrow. It leaves a range of alternatives nearly identical, excluding more efficient and less environmentally damaging alternatives. We also feel using 2016 as base -- as the baseline conditions is problematic. The DEIS should describe the natural state of water flow and summarize all the prior Denver Water diversions and any other manmade diversions that shouldn't be included in a baseline condition -- or should be included in a baseline condition. While the DEIS acknowledges that there are fragile environmental conditions in 2016, it concludes that past water-related projects may have had an adverse effect and that future water projects would have limited new effects. NEPA guidelines say that the EIS should state whether resources are healthy, deteriorating, or considerably compromised. There are concerns that conditions may already be seriously compromised and that the environment is at its tipping point. We are also concerned that there is no discussion of tourism or businesses that rely on tourism in the DEIS, and there's no baseline data on fishing. The environmental consequences discussion does mention an adverse environmental impact on the Fraser and Williams Fork rivers, but there are no socioeconomic implications. Lastly, we do not support the no-action alternative, because we feel there could be -- we feel we all could be better off with the mitigation and enhancement that should be included in the project. And I would echo Kirk Klancke's statement, that we have an opportunity here for a win-win situation. So thank you for the opportunity for adding these additional comments.	***Comment #548-2*** *(ID 623)**:*** *I'm here representing Northwest Colorado Council of Governments, who has been the regional 208 agency since 1976. I did speak in Boulder a couple of nights ago, but there are a few additional points that I would like to make. First, on behalf of our members, we support a 45-day extension to allow our members adequate time to review the DEIS.* **Response #548-2:** The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days. ***Comment #548-1*** *(ID 624)**:*** *Next, we would like to point out that the Purpose and Need is too narrow. It leaves a range of alternatives nearly identical, excluding more efficient and less environmentally damaging alternatives* **Response #548-1:** The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers

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		upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. ***Comment #548-3*** *(ID 625)**:*** *We also feel using 2016 as base -- as the baseline conditions is problematic. The DEIS should describe the natural state of water flow and summarize all the prior Denver Water diversions and any other manmade diversions that shouldn't be included in a baseline condition -- or should be included in a baseline condition. While the DEIS acknowledges that there are fragile environmental conditions in 2016, it concludes that past water-related projects may have had an adverse effect and that future water projects would have limited new effects.*

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		Response #548-3: The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other reasonably foreseeable future actions based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's System when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other reasonably foreseeable future actions. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes reasonably foreseeable future actions including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is

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		not responsible for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032). The evaluation of total environmental effects due to proposed Moffat Project and other reasonably foreseeable actions was based on a comparison with modeled Current Conditions, which reflects the current administration of the river, demands, infrastructure, and operations. It is not appropriate to evaluate the effects of future Moffat Project diversions based on comparisons with historical information or conditions as they existed before any water diversions occurred because demands have changed considerably over the course of the study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. To provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System and each of the Moffat Project alternatives. ***Comment #548-5*** *(ID 626)**:*** *NEPA guidelines say that the EIS should state whether resources are healthy, deteriorating, or considerably compromised. There are concerns that conditions may already be seriously compromised and that the environment is at its tipping point.* **Response #548-5:** The Corps is not aware of a scientific threshold or “tipping point” at which negative impacts occur to resources like water quality or aquatic species nor is the Corps aware of any model or technique available that

Comment Information	Comment	Comments and Responses
		conducts "threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. The direct impact discussion for aquatic resources (DEIS Section 4.9) identifies minor impacts are anticipated to occur as a result of the Project, particularly since Denver Water would not divert additional West Slope water in dry years. Additionally, diversions during winter months would occur in 2 years during the 45-year study period. In winter months when additional diversions take place, bypass flows would usually be equal to or higher than the average winter flows and always higher than the minimum flow. ***Comment #548-4*** *(ID 627)**:*** *We are also concerned that there is no discussion of tourism or businesses that rely on tourism in the DEIS, and there's no baseline data on fishing. The environmental consequences discussion does mention an adverse environmental impact on the Fraser and Williams Fork rivers, but there are no socioeconomic implications.* **Response #548-4:** Section 3.17.5.6 of the FEIS includes a description of Grand County's tourism economy, including the impacts of tourism spending. However, the description was expanded in the FEIS to further address the number of tourism related businesses in the county. Section 3.13.5

Comment Information	Comment	Comments and Responses
		of the FEIS addresses fishing on various river segments in Grand County. Section 5.19 of the FEIS addresses socioeconomic impacts to Grand County businesses and residents. This text has been expanded for the FEIS as appropriate and applicable to provide clarification of impact conclusions. ***Comment #548-6*** *(ID 628)**:*** *Lastly, we do not support the no-action alternative, because we feel there could be -- we feel we all could be better off with the mitigation and enhancement that should be included in the project. And I would echo Kirk Klancke's statement, that we have an opportunity here for a win-win situation. So thank you for the opportunity for adding these additional comments.* **Response #548-6:** The Corps notes the comment.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #579 Douglas Pryce, President, Board of Directors Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road Golden, CO 80403 and Jeffrey Konikowski, Board of Directors Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road Golden, CO 80403 and Nancy Hollinger, Board of Directors Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road Golden, CO 80403 and D. Michael Overmyer, Board of Directors Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road Golden, CO 80403 and	From: Doug Pryce [mailto:[redacted] Sent: Thursday, March 04, 2010 3:09 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project Mr. Scott Franklin: The attached letter reflects the comments of Coal Creek Canyon Park & Recreation District regarding the proposed Moffat Collection System Project. Douglas Pryce, President - PRD Gross Dam input-Army.pdf	***Comment #579-3*** *(ID 3103)**:*** *The Coal Creek Canyon Park & Recreation District Board of Directors requests that the Denver Water Board address serious safety issues regarding its proposed development of Gross Dam. The first concerns bike traffic on State Highway 72; the second concerns foot traffic on Gross Dam Road.* **Response #579-3:** Please see the Responses to Comment IDs 3101 and 3102. ***Comment #579-2*** *(ID 3102)**:*** *State Highway 72 is the main artery through Coal Creek Canyon and is the route that would likely be used for large trucks on your project. It is a two-lane road with numerous instances of little or no shoulders. It is also a popular biking road. Metro residents ride a loop that includes Coal Creek Canyon and Boulder Canyon, some riding clockwise on that loop, others counterclockwise. There is also a less traveled loop that includes Coal Creek Canyon and Golden Gate Canyon. The current mix of bike and motor vehicle traffic on SH 72 already poses a danger, particularly at the numerous blind curves on that road. There have been discussions with the Colorado Transportation Department regarding installation of a bike path, but there is no improvement to date. We anticipate that the added traffic proposed by the Moffat Project will compound this danger. The risks arise not only from the additional large trucks traveling SH 72 but also from drivers being frustrated by those large trucks and becoming reckless. We have no need to assign blame; we are simply attempting to address safety issues. To a lesser extent, the bikers also use Gross Dam Road as a loop, connecting over to Boulder via Flagstaff Mountain* **Response #579-2:** Denver Water met with CDOT regarding establishment of a bike path. However, Denver Water's consultant and

Comment Information	Comment	Comments and Responses
Linda Martin, Board of Directors Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road Golden, CO 80403	Attachments: Coal Creek Canyon Park & Recreation District 1720 Gross Dam Road, Golden, CO 80403 March 4, 2010 Scott Franklin, EIS Project Mgr. Corps Denver Regulatory Office Re: Moffat Project The Coal Creek Canyon Park & Recreation District Board of Directors requests that the Denver Water Board address serious safety issues regarding its proposed development of Gross Dam. The first concerns bike traffic on State Highway 72; the second concerns foot traffic on Gross Dam Road. State Highway 72 is the main artery through Coal Creek Canyon and is the route that would likely be used for large trucks on your project. It is a two-lane road with numerous instances of little or no shoulders. It is also a popular biking road. Metro residents ride a loop that includes Coal Creek Canyon and Boulder Canyon, some riding clockwise on that loop, others counterclockwise. There is also a less traveled loop that includes Coal Creek Canyon and Golden Gate Canyon. The current mix of bike and motor vehicle traffic on SH 72 already poses a danger, particularly at the numerous blind curves on that road. There have been discussions with the Colorado Transportation Department regarding installation of a bike path, but there is no improvement to date. We anticipate that the added traffic proposed by the Moffat Project will compound this danger. The risks arise not only from the additional large trucks traveling SH 72 but also from drivers being frustrated by those large trucks and becoming reckless. We have no need to assign blame; we are simply attempting to address safety issues. To a lesser extent, the bikers also use Gross Dam Road as a loop, connecting over to Boulder via Flagstaff Mountain. The second safety problem concerns pedestrians on Gross Dam Road. That dirt road is one of the few paths in the canyon that is flat enough for our community to take walks on. Many residents, particularly older residents, use that road for their exercise. It, too, has at least one blind curve where pedestrians are at risk on both the inside and the outside of the curve. To date, the lack of traffic on that road has lessened the danger. The size and frequency of your vehicles will have a significant impact on that risk. Regarding the entry onto Gross Dam Road from SH 72, a very sharp turn, we assume you are aware that a large truck will certainly occupy the opposing lane of traffic as it makes that turn. The Park & Recreation District is concerned about the safety of residents and non-residents in the Canyon. We believe your proposal has not sufficiently recognized the severity of those risks. Please advise us as to how you plan to address these safety concerns. Sincerely, Coal Creek Canyon Park & Recreation District Board of Directors Douglas Pryce, President Jeffrey Konikowski Nancy Hollinger D. Michael Overmyer Linda Martin	CDOT evaluated this option and determined that establishing a bike path would not be feasible due to safety concerns, and space and cost constraints. The Corps assumes that construction contractors would comply with health and safety plans and codes instituted by their respective companies and Denver Water. A contractor hired by Denver Water would be in charge of construction activity, including safety compliance. Denver Water also plans to have staff on-site during construction. ***Comment #579-1*** *(ID 3101)**:*** *The second safety problem concerns pedestrians on Gross Dam Road. That dirt road is one of the few paths in the canyon that is flat enough for our community to take walks on. Many residents, particularly older residents, use that road for their exercise. It, too, has at least one blind curve where pedestrians are at risk on both the inside and the outside of the curve. To date, the lack of traffic on that road has lessened the danger. The size and frequency of your vehicles will have a significant impact on that risk. Regarding the entry onto Gross Dam Road from SH 72, a very sharp turn, we assume you are aware that a large truck will certainly occupy the opposing lane of traffic as it makes that turn. The Park & Recreation District is concerned about the safety of residents and non-residents in the Canyon. We believe your proposal has not sufficiently recognized the severity of those risks. Please advise us as to how you plan to address these safety concerns.* **Response #579-1:** Most of the roadways serving Gross Reservoir (e.g., SHs 72 and 93) are in good condition and are designed to handle large, heavy construction vehicles. However, Denver Water would improve other roads in the Project area to accommodate construction activities, if needed. Denver Water met with CDOT to discuss the potential increase in truck traffic on SH 72 during construction as

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		well as options for managing and mitigating Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including improving turnouts on SH 72 for slow-moving traffic. Denver Water will work with Jefferson and Boulder counties to address local traffic concerns. Various road segments within the Project boundary, such as areas near the dam, would be temporarily closed for safety reasons during construction. Additionally, two road segments that provide access to the dam would be abandoned and relocated due to inundation. Approximately 1,500 feet of the north abutment access road (Dam Relocated Access Road) would be relocated to the east at an elevation 100 feet higher than the existing access road. Approximately 1,500 feet of the south abutment access road (Dam Relocated Access Road) would be relocated south of the existing access road (see Figure 2-3). The Corps assumes that construction contractors would comply with health and safety plans and codes instituted by their respective companies and Denver Water. A contractor hired by Denver Water would be in charge of construction activity, including safety compliance. Denver Water also plans to have staff on-site during construction. Although some recreational areas would be inundated under the Proposed Action, public access to Gross Reservoir would not be changed. Access would remain unchanged via the existing north and south public access points. During construction, recreational access in the area of the dam would be limited for safety reasons. Access to and around Gross Reservoir would not significantly change once construction is finished.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #588 Deborrah G. Pilon, District Manager Willows Water District 6930 South Holly Circle Centennial, CO 80112 and Susan E. Nix, President, Board of Directors Willows Water District 6930 South Holly Circle Centennial, CO 80112	From: Deb Pilon [mailto:dpilon@willowswater.org] Sent: Monday, March 08, 2010 1:34 PM To: MOFFAT.EIS@usace.army.mil Cc: moffatproject@denverwater.org Subject: Moffat Project comments Attached letter in support of the Moffat Collection System Project. Thank you. Deborrah G. Pilon | District Manager | Willows Water District 6930 S Holly Circle | Centennial, CO 80112 303.770.8625 - T | 303.770.9864 - F | dpilon@willowswater.org <mailto:dpilon@willowswater.org> CONFIDENTIALITY NOTICE: This transmission and any documents, files, or correspondence attached to it, may contain confidential information, some or all of which may be legally privileged. If you are not the intended recipient or a person responsible for delivering it to the intended recipient, please be advised that any disclosure, copying, distribution, or use of any of the information contained or attached to this transmission is prohibited. If you have received this transmission in error, please immediately notify us by telephone or email and destroy the original transmission and its attachments. Thank you in advance for your cooperation. P Please consider the environment before printing this e-mail. - Moffat comments .pdf	***Comment #588-1*** *(ID 3112)**:*** *Willows Water District is a distributor of Denver Water that serves approximately 20,000 customers in Centennial, Colorado. We track water purchased from Denver Water monthly and annually; water purchased has declined significantly since 200 I (80,000 gallons per household), primarily due to Denver Water conservation efforts in which we have participated. However, even with significant conservation efforts, Denver Water still needs additional water supply. Denver Water has identified a water supply shortfall of34,000 acre-feet of water by 2030. The question is not whether the water is needed; it's really a question of when it will be needed. Denver Water plans to address roughly 16,000 acre-feet per year of the shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The increased reserves are needed to address uncertainties such as climate change and forest fires. Denver Water must be prepared to respond to natural disasters such as the 2002 Hayman Fire. Should such a disaster affect Strontia Springs Reservoir on the south end of Denver Water's system and through which 80 percent of its raw water supply flows, the Moffat System would become the sole water supply for all Denver Water and its distributors. Vulnerabilities in the north end of Denver Water's system were detected during the 2002 drought. Treated water for the south side of the system had to be delivered to the north end through a makeshift system that included open ditches. The treated water then had to be re-treated before being used. We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County.*

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
	Attachments: WILLOWS WATER DISTRICT 6930 South Holly Circle Centennial, CO 80112-1018 303-770-9625 Fax 303 770-9864 E-mail: customerservice@willowswater.org Website: willowswater.org March 8, 2010 Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 moffat eis@usace.army.mil Dear Mr. Franklin: Willows Water District is a distributor of Denver Water that serves approximately 20,000 customers in Centennial, Colorado. We track water purchased from Denver Water monthly and annually; water purchased has declined significantly since 2001 (80,000 gallons per household), primarily due to Denver Water conservation efforts in which we have participated. However, even with significant conservation efforts, Denver Water still needs additional water supply. Denver Water has identified a water supply shortfall of 34,000 acre-feet of water by 2030. The question is not whether the water is needed; it's really a question of when it will be needed. Denver Water plans to address roughly 16,000 acre-feet per year of the shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The increased reserves are needed to address uncertainties such as climate change and forest fires. Denver Water must be prepared to respond to natural disasters such as the 2002 Hayman Fire. Should such a disaster affect Strontia Springs Reservoir on the south end of Denver Water's system and through which 80 percent of its raw water supply flows, the Moffat System would become the sole water supply for all Denver Water and its distributors. Vulnerabilities in the north end of Denver Water's system were detected during the 2002 drought. Treated water for the south side of the system had to be delivered to the north end through a makeshift system that included open ditches. The treated water then had to be re-treated before being used. We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County. Sincerely, Susan E. Nix President, Board of Directors	**Response #588-1:** The Corps notes the support of the Moffat Project. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #712 Brad Dallam City of Lafayette 1290 South Public Road Lafayette, CO 80026 and Christine L. Cameron, Mayor City of Lafayette 1290 South Public Road Lafayette, CO 80026	From: Brad Dallam [mailto:bradd@cityoflafayette.com] Sent: Tuesday, March 09, 2010 2:03 PM To: Franklin, J Scott NWO Subject: Emailing: Xerox2906 <<Xerox2906.PDF>> Scott, Here is a letter from Lafayette in support of the Gross Reservoir expansion. The paper copy will go in the mail tomorrow, but I thought it best to email a copy also. Please call if you have any questions. bsd - Xerox2906.PDF	***Comment #712-1*** *(ID 3142)**:*** *Here is a letter from Lafayette in support of the Gross Reservoir expansion. The paper copy will go in the mail tomorrow, but I thought it best to email a copy also. Please call if you have any questions.* **Response #712-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #712-2*** *(ID 3143)**:*** *With this letter the City of Lafayette ("Lafayette"), is documenting support for the Moffat Collection System Project ("Moffat Project") being proposed by City and County of Denver Board of Water Commissioners ("Denver Water"). Although the Moffat Project will result in a change in the status quo in both the South Boulder Creek and Colorado River basins, Denver Water has demonstrated a willingness to work with other water providers and environmental groups to minimize impacts in both basins to the greatest extent possible. Lafayette, Denver Water and the City of Boulder ("Boulder") recently entered into a cooperative Intergovernmental Agreement that will result in the creation of a 5,000 acre-foot Environmental Pool in Gross Reservoir once the reservoir is expanded. Lafayette and Boulder will store portions of their water supplies in the Environmental Pool during periods of high runoff on South Boulder Creek. The water will then be released during low flow periods to provide targeted minimum flows in South Boulder Creek from Gross Reservoir to the Creek's confluence with Boulder Creek, a distance of approximately 17.5 miles. Without the Moffat Project, this enhancement of historic South Boulder Creek flows would not be possible. As a municipal water provider, Lafayette understands and supports Denver's goal of increasing its existing water supplies to accommodate future demand and providing flexibility and redundancy regarding its water system. All items required to ensure the long term*

Comment Information	Comment	Comments and Responses
	Attachments: City of Lafayette Administration March 3, 2010 Scott Franklin, Moffat EIS Project Manager US Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128 RE: Moffat Collection System Project; Application No. NWO-2002-80762-DEN Dear Mr. Franklin: With this letter the City of Lafayette ("Lafayette"), is documenting support for the Moffat Collection System Project ("Moffat Project") being proposed by City and County of Denver Board of Water Commissioners ("Denver Water"). Although the Moffat Project will result in a change in the status quo in both the South Boulder Creek and Colorado River basins, Denver Water has demonstrated a willingness to work with other water providers and environmental groups to minimize impacts in both basins to the greatest extent possible. Lafayette, Denver Water and the City of Boulder ("Boulder") recently entered into a cooperative Intergovernmental Agreement that will result in the creation of a 5,000 acre-foot Environmental Pool in Gross Reservoir once the reservoir is expanded. Lafayette and Boulder will store portions of their water supplies in the Environmental Pool during periods of high runoff on South Boulder Creek. The water will then be released during low flow periods to provide targeted minimum flows in South Boulder Creek from Gross Reservoir to the Creek's confluence with Boulder Creek, a distance of approximately 17.5 miles. Without the Moffat Project, this enhancement of historic South Boulder Creek flows would not be possible. As a municipal water provider, Lafayette understands and supports Denver's goal of increasing its existing water supplies to accommodate future demand and providing flexibility and redundancy regarding its water system. All items required to ensure the long term serviceability of a utility. Of the six alternative options contained in the Draft Environmental Impact Statement, the proposed action clearly has the most merit. Lafayette would urge the US Army Corps of Engineers to proceed with permitting the Moffat Project. 1290 S. Public Rd. • Lafayette, Colorado 80026 • (303) 665-5588 • Fax (303) 665-2153	*serviceability of a utility. Of the six alternative options contained in the Draft Environmental Impact Statement, the proposed action clearly has the most merit. Lafayette would urge the US Army Corps of Engineers to proceed with permitting the Moffat Project. Should you or other staff members in the Denver Regulatory Office of the US Army Corps of Engineers have questions regarding Lafayette's position, do not hesitate to contact Gary Klaphake, our City Administrator.* **Response #712-2:** The Corps notes the support of the Moffat Project. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
	Should you or other staff members in the Denver Regulatory Office of the US Army Corps of Engineers have questions regarding Lafayette's position, do not hesitate to contact Gary Klaphake, our City Administrator. Sincerely, Christine L. Cameron, Mayor cc: Lafayette City Council Gary Klaphake, City Administrator Douglas M. Short, Director of Public Works David C. Lindholm, Esq. City of Boulder Denver Water Boulder County Commissioners	

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #729 Ben R. Brock, Assistant Secretary/ Treasurer South-East Englewood Water District 390 Union Boulevard, Suite 400 Denver, CO 80228 and Diana S. Holland, Vice President South-East Englewood Water District 390 Union Boulevard, Suite 400 Denver, CO 80228 and Harold R. Thyfault, President South-East Englewood Water District 390 Union Boulevard, Suite 400 Denver, CO 80228 and Roberta F. Gillis, Secretary South-East Englewood Water District 390 Union Boulevard, Suite 400 Denver, CO 80228	From: Tim Flynn [mailto:tflynn@CCCFIRM.COM] Sent: Tuesday, March 16, 2010 11:49 AM To: MOFFAT.EIS@usace.army.mil Cc: 'moffatproject@denverwater.org' Subject: South-East Englewood - Moffat Project Dear Mr. Franklin: Attached please find a letter from the South-East Englewood Water District in support of Denver Water's Moffat Project. Sincerely yours, Timothy J. Flynn Collins Cockrel & Cole 390 Union Boulevard, Suite 400 Denver, Colorado 80228-1556 303-986-1551 Telephone 303-218-7198 Direct Dial 800-354-5941 Toll Free 303-986-1755 Facsimile tflynn@cccfirm.com <blocked::blocked::blocked::blocked::blocked::blocked::mailto:tflynn@cccfirm.com> Email PRIVILEGED COMMUNICATION. This email may contain attorney-client or otherwise privileged and confidential information intended only for the use of the individual or entity named above. Dissemination, distribution or copying of this communication is strictly prohibited. If you are an attorney or law firm, consult Title I of the federal Electronic Communications Privacy Act of 1986. If you believe that this email has been sent to you in error, please reply to the sender that you received the message in error and delete this email. ATTACHMENTS. Although this email and any attachments are believed to be free of any virus, the files should be virus scanned before opening them. - DOC031610-001.pdf	***Comment #729-1*** *(ID 3348)**:*** *The South-East Englewood Water District serves approximately 15,000 customers within the cities of Centennial, Greenwood Village, and unincorporated Arapahoe County. Our District is a distributor of Denver Water. Our service area has participated with Denver Water's conservation efforts. We have seen a decline in per household water usage over the past several years. However, even with significant conservation efforts, we still need additional water supply. The 2002 drought showed the vulnerabilities in the north end of Denver Water's system. Treated water for the south side of the system had to be delivered through a makeshift system that included open ditches. The treated water had to be re-treated before being used on the north end of the system. If there are natural disasters that affect Strontia Springs Reservoir, such as the 2002 Hayman Fire, the Moffat System would become the sole water supply for all Denver Water and its distributors. Currently 80 percent of Denver Water's raw water supply flows through Strontia Springs Reservoir on Denver Water's south end, highlighting the need for additional supply on Denver Water's north end in the Moffat Collection System. Our District is charged with providing water to all customers in our service area. While there is debate about growth issues, those debates are best handled by the legislative process and not by water utilities. Denver Water has identified a water supply shortfall of 34,000 acre-feet of water by 2030. The question is not if we will need this water; it's when. Denver Water plans to address roughly 16,000 acre-feet per year of the shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The reserves are needed as issues such as climate change and forest fires create a need for increased reserves. As uncertainties increase, so should the strategic reserve of raw water. Conservation and Denver Water's recycled water system have decreased the demand for some of that new supply, but there is a need for additional supply,*

Comment Information	Comment	Comments and Responses
and Timothy J. Flynn Collins Cockrel & Cole 390 Union Boulevard, Suite 400 Denver, CO 80228	Attachments: **South-East Englewood Water District** **390 Union Boulevard, Suite 400** **Denver, Colorado 80228** **(303) 986-1551** March 11, 2010 **VIA E-MAIL:** **MOFFAT.EIS@USACE.ARMY.MIL** Scott Franklin Moffat EIS Project Manager Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 **Re: Denver Water's Moffat Project** Dear Mr. Franklin: The South-East Englewood Water District serves approximately 15,000 customers within the cities of Centennial, Greenwood Village, and unincorporated Arapahoe County. Our District is a distributor of Denver Water. Our service area has participated with Denver Water's conservation efforts. We have seen a decline in per household water usage over the past several years. However, even with significant conservation efforts, we still need additional water supply. The 2002 drought showed the vulnerabilities in the north end of Denver Water's system. Treated water for the south side of the system had to be delivered through a makeshift system that included open ditches. The treated water had to be re-treated before being used on the north end of the system. If there are natural disasters that affect Strontia Springs Reservoir, such as the 2002 Hayman Fire, the Moffat System would become the sole water supply for all Denver Water and its distributors. Currently 80 percent of Denver Water's raw water supply flows through Strontia Springs Reservoir on Denver Water's south end, highlighting the need for additional supply on Denver Water's north end in the Moffat Collection System. Our District is charged with providing water to all customers in our service area. While there is debate about growth issues, those debates are best handled by the legislative process and not by water utilities. Denver Water has identified a water supply shortfall of 34,000 acre-feet of water by 2030. The question is not if we will need this water; it's when. Denver Water plans to address roughly 16,000 acre-feet per year of the {00187065.DOC /}	*especially on the north end of Denver Water's system. We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County.* **Response #729-1:** The Corps notes the support of the Moffat Project. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
	Scott Franklin March 11, 2010 Page 2 shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The reserves are needed as issues such as climate change and forest fires create a need for increased reserves. As uncertainties increase, so should the strategic reserve of raw water. Conservation and Denver Water's recycled water system have decreased the demand for some of that new supply, but there is a need for additional supply, especially on the north end of Denver Water's system. We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County. Sincerely yours, Harold R. Thyfault, President Roberta F. Gillis, Secretary Diana S. Holland, Vice President Ben R. Brock, Assistant Secretary/Treasurer TJF/cds {00187065.DOC/}	

Comment-Response Report (Jurisdictions/Municipalities Part A)

Comment Information	Comment	Comments and Responses
Comment #743 John M. Ely, County Attorney Pitkin County Attorney's Office 530 East Main Street, Suite 302 Aspen, CO 81611 and Jane Achey, Legal Assistant Pitkin County Attorney's Office 530 East Main Street, Suite 302 Aspen, CO 81611	From: Jane Achey [mailto:Jane.Achey@co.pitkin.co.us] Sent: Tuesday, March 16, 2010 2:42 PM To: MOFFAT.EIS@usace.army.mil Cc: John Ely Subject: Moffat Collection System Project EIS Dear Mr. Franklin: Attached please public comments regarding the draft Moffat Collection System Project EIS submitted on behalf of the Board of County Commissioners of Pitkin County, Colorado. Sincerely, Jane Achey Legal Assistant Pitkin County Attorney's Office 530 E. Main Street, Suite 302 Aspen, CO 81611 Phone 970-920-5190 Fax 970-920-5198 NOTICE: This e-mail message and all attachments transmitted with it may contain legally privileged and confidential information intended solely for the use of the addressee. If the reader of this message is not the intended recipient, you are hereby notified that any reading, dissemination, distribution, copying, or other use of this message or its attachments is strictly prohibited. If you have received this message in error, please notify the sender immediately by telephone (970-920-5190) and delete this message and all copies and backups thereof. Thank you. - FranklinUSACE3-16-10.pdf	***Comment #743-2*** *(ID 3405)**:*** *Attached please public comments regarding the draft Moffat Collection System Project EIS submitted on behalf of the Board of County Commissioners of Pitkin County, Colorado.* **Response #743-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #743-7*** *(ID 3404)**:*** *This letter is being submitted as part of the USACE's request for public comment to the draft Environmental Impact Statement for the Moffat Collection System Project. This letter reflects the position of the Board of County Commissioners of Pitkin County, Colorado. It is the position of the Pitkin County Board of County Commissioners that the draft Environmental Impact Statement (DEIS) is an incomplete and therefore, inconclusive analysis and review of the effects of the proposed diversion not only for the basin of origin, but, in particular for the other headwater communities on the west slope of Colorado as well. Failure to completely analyze the impacts of this diversion have resulted in a study which inadequately explores alternatives to the stated problem, particularly alternatives that do not precipitate the harm to the west slope communities the proposed diversion project would inflict. Failure to analyze the economic and environmental impacts of the Moffat Collection System Project on other headwater communities is a failure to recognize the hydrological connectivity of the west slope of Colorado. This hydrologic system has shrunk in today's world and taxing the upper Colorado in the Fraser River and its tributaries will force problems to emerge elsewhere. The 18,000 acre-feet represent a resource of the state, not of the front range. It is currently used, reused, stored and released in the Colorado drainage to the benefit of many different communities.*

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	Attachments: PITKIN COUNTY ATTORNEY John M. Ely *County Attorney* *Courthouse Annex Building* 530 East Main Street, Suite 302 Aspen, Colorado 81611-1948 Christopher G. Seldin *Assistant County Attorney* Tel: (970) 920-5190 Fax: (970) 920-5198 Carrington Brown *Code Enforcement Officer* *Legal Assistants:* Lisa MacDonald June Achey March 16, 2010 Scott Franklin Moffat EIS Project Manager U.S. Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, CO 80128 RE: Moffat Collection System Project EIS Dear Mr. Franklin: This letter is being submitted as part of the USACE's request for public comment to the draft Environmental Impact Statement for the Moffat Collection System Project. This letter reflects the position of the Board of County Commissioners of Pitkin County, Colorado. It is the position of the Pitkin County Board of County Commissioners that the draft Environmental Impact Statement (DEIS) is an incomplete and therefore, inconclusive analysis and review of the effects of the proposed diversion not only for the basin of origin, but in particular for the other headwater communities on the west slope of Colorado as well. Failure to completely analyze the impacts of this diversion have resulted in a study which inadequately explores alternatives to the stated problem, particularly alternatives that do not precipitate the harm to the west slope communities the proposed diversion project would inflict. Failure to analyze the economic and environmental impacts of the Moffat Collection System Project on other headwater communities is a failure to recognize the hydrological connectivity of the west slope of Colorado. This hydrologic system has shrunk in today's world and taxing the upper Colorado in the Fraser River and its tributaries will force problems to emerge elsewhere. The 18,000 acre-feet represents a resource of the state, not of the front range. It is currently used, reused, stored and released in the Colorado drainage to the benefit of many different communities. As is too often the case in diversion projects, water conservation as an alternative or at least a mitigation to dampen future demand is too readily dismissed. The Moffat Collection System Project DEIS is no exception particularly in its discussion of Denver's proposed WISE Water Conservation Project. This represents an updated approach which encourages a pattern of	**Response #743-7:** The FEIS addresses the environmental and economic impacts of the alternatives to the headwater counties within the Project area. Since changes to water flows utilized by Pitkin County are unaffected by the Moffat Project and no other attributes of the alternatives affect Pitkin County, it is not addressed in this EIS. ***Comment #743-8*** *(ID 3403)**:*** *As is too often the case in diversion projects, water conservation as an alternative or at least a mitigation to dampen future demand is too readily dismissed. The Moffat Collection System Project DEIS is no exception particularly in its discussion of Denver's proposed WISE Water Conservation Project. This represents an updated approach which encourages a pattern of water consumption that cannot be sustained without catastrophic effects in basins of origins and perpetuates the misconception that the state resources are better utilized on the front range than the western slope simply because the presumed value of growth on the front range is a paramount interest of the state.* **Response #743-8:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e. 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of

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	SCOTT FRANKLIN U.S. ARMY CORPS OF ENGINEERS MARCH 16, 2010 water consumption that cannot be sustained without catastrophic effects in basins of origin and perpetuates the misconception that the state resources are better utilized on the front range than the western slope simply because the presumed value of growth on the front range is a paramount interest of the state. Of particular concern to Pitkin County is the impact of this diversion on the endangered fish species in the 15-mile Reach of the Colorado River above the confluence with the Gunnison River. According to the current Programmatic Biological Opinion for depletions in the upper Colorado River of the United States Fish and Wildlife Service, the recognized amount of water identified for the survival of these endangered fish populations has been quantified at 10,825 acre feet per year (final Programmatic Biological Opinion (PBO) from Bureau of Reclamation's Operations and Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River, December 1999). The assumptions inherent in this quantification rely upon the current flow conditions of the Colorado River. Currently, this quantified amount is supplied from releases at Wolford and Williams Fork Reservoirs but is anticipated to be made in equal amounts in the future from Granby and Ruedi Reservoirs. The DEIS assumes no changes in the river system whereby the solution presented in the PBO would have to be modified. Increased diversions, absent compensatory storage, will assuredly lead to a change in conditions not contemplated by the PBO. Pitkin County has previously furnished comments to the Bureau of Reclamation expressing its concerns that Ruedi not be considered as a source waiting to be tapped for the satisfaction of the PBO without consideration of the impact such releases will have on the economy and environment of Pitkin County in the lower Frying Pan River. These issues have equal relevance here and any resulting record of decision should include: • How increased diversions in the upper Colorado River will influence demand for releases from Ruedi Reservoir to satisfy the Programmatic Biological Opinion • How storage levels in Ruedi Reservoir will be affected by the proposed increased diversions and any increased demand for releases from Ruedi Reservoir occasioned by that increased diversion out of the upper Colorado River • If releases from Ruedi Reservoir are changed in response to the proposed Moffat Tunnel diversion, how will these releases insure the normal, natural hydrography of the lower Frying Pan River • Provision for releases from other reservoirs to meet any changing need of the endangered fish program and the Programmatic Biological Opinion, particularly Williams Fork Reservoir, should such additional diversions be required by the proposed Moffat Tunnel diversion • If additional releases are ever needed from Ruedi Reservoir, protection for the environmental and recreational needs of the Frying Pan valley from any potential 2	all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. There is currently insufficient information available to incorporate the WISE Project in Denver Water's PACSM because a variety of possible scenarios are being considered and evaluated by the Project proponents. A qualitative evaluation of this Project was added to FEIS Section 4.6.1, which describes the purpose of the Project, the participants, and generally how it would operate. While WISE would have participation from several water providers, WISE would use, in part the same water (unused Denver Water reusable effluent) as Moffat Project Alternatives 8a and 10a and various aquifers in the regions to store water similar to Alternative 10a. The partnership between Denver Water, Aurora, and the South Metro Water Supply Authority would make use of excess reusable water as it becomes available from time to time. When available, and on a space available basis, the excess reusable water would be pumped from the lower South Platte River (north of Denver) to water users upstream (south of Denver). The WISE project makes use of the same reusable water considered for Alternatives 8a and 10a, and other alternatives considered in the DEIS. While the WISE project could provide Denver Water some firm yield, it does not deliver water to where Denver Water needs the extra supply (north end). Alternatives 8a and 10a did deliver this water to north end and are considered practicable alternatives in this EIS. Denver Water has "up to" 40,000 AF of excess reusable effluent. In some years, Denver Water has 0 AF of excess reusable effluent. On average, Denver Water has 8,000 AF on average of excess reusable effluent – this is the amount used when developing Alternatives 8a and 10a for the DEIS.

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	SCOTT FRANKLIN U.S. ARMY CORPS OF ENGINEERS MARCH 16, 2010 additional demands placed upon Ruedi Reservoir occasioned from the Moffat Collection System Project The DEIS for the Moffat Collection System Project must demonstrate how the proposed diversion will not exacerbate the need for Ruedi releases for the endangered fish program and established PBO. The most obvious flaw in the projected stream flow analysis within the DEIS is its failure to address the single biggest potential change to the Colorado River; the reduction or elimination of a call at the Xcel Shoshone Power Plant. Recent shutdowns and slowdowns at the power plant present this potentiality as a very real probability. Should the water rights associated with the Shoshone Power Plant not be called, the river conditions will be radically different from that contemplated in the DEIS. This fact alone creates a fatal flaw within the document. Buried within the DEIS, in a location not readily apparent, in a manner not promoting full discussion and debate, is the description of the action alternatives effect on the west slope. The DEIS must completely discuss the recreational, scenic and ecological importance of the Colorado River to the overall tourist and recreational economies with attention to the impact of the economic sectors on the overall economic health and sustained property values of west slope communities. This discussion to be meaningful, must relate these economic conditions to not only minimum river flows, but such flows needed to sustain a vital west slope economy. Beyond the broad brush and cursory treatment of the DEIS, such a detailed and disclosed examination of the effect of additional diversions out of the upper Colorado on west slope communities is not examined. Finally, any resulting record of decision relating to the Moffat Tunnel Collection System Project must include protocols for increase mitigation should any of the assumptions in the DEIS prove to be false, such as the failure of the Shoshone call to protect sufficient flows for the endangered fish program, or if the proposed mitigation efforts are found insufficient to maintain the health of the Fraser River system or compliance with the Programmatic Biological Opinion for the 15-mile Reach. Pitkin County representatives are available to discuss these issues further if it would be helpful. Sincerely, PITKIN COUNTY ATTORNEY'S OFFICE John M. Ely County Attorney 3	***Comment #743-5*** *(ID 3402)**:*** *Of particular concern to Pitkin County is the impact of this diversion on the endangered fish species in the 15-mile Reach of the Colorado River above the confluence with the Gunnison River. According to the current Programmatic Biological Opinion for depletions in the upper Colorado River of the United States Fish and Wildlife Service, the recognized amount of water, identified for the survival of these endangered fish populations has been quantified at 10,825 acre feet per year (final Programmatic Biological Opinion (PBO) from Bureau of Reclamation's, Operations and Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River, December 1999). The assumptions inherent in this quantification rely upon the current flow conditions of the 'Colorado River. Currently, this quantified amount is supplied from releases at Wolford and Williams Fork Reservoirs but is anticipated to be made in equal amounts in the future from Granby and Ruedi Reservoirs. The DEIS assumes no changes in the river system whereby the solution presented in the PBO would have to be modified. Increased diversions, absent compensatory storage, will assuredly lead to a change in conditions not contemplated by the PBO.' Pitkin County has previously furnished comments to the Bureau of Reclamation expressing its concerns that Ruedi not be considered as a source waiting to be tapped for the satisfaction of the PBO without consideration of the impact such releases will have on the economy and environment of Pitkin County in the lower Frying Pan River. These issues have equal relevance here and any resulting record of decision should include: How increased diversions in the upper Colorado River will influence demand for releases from Ruedi Reservoir to satisfy the Programmatic Biological Opinion How storage levels in Ruedi Reservoir will be affected by the proposed increased diversions and any increased demand for releases from Ruedi Reservoir occasioned*

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		by that increased diversion out of the upper Colorado River If releases from lledi Reservoir are changed in Response to the proposed Moffat Tunnel diversion, how will these releases insure the normal, natural hydrography of the lower Frying Pan River Provision for releases from other reservoirs to meet any changing need of the endangered fish program and the Programmatic Biological Opinion, particularly Williams Fork Reservoir, should such additional diversions be required by the proposed Moffat Tunnel Diversion. If additional releases are ever needed from Ruedi Reservoir, protection fir the environmental and recreational needs of the Frying Pan valley from any Potential additional demands placed upon Ruedi Reservoir occasioned from the Moffat Collection System Project The DEIS for the Moffat Collection System Project must demonstrate how the proposed diversion will not exacerbate the need for Ruedi releases for the endangered fish program and established PBO. **Response #743-5:** Additional information was added to Section 4.1 on proposed releases to meet USFWS flow recommendations for endangered fish in the 15-Mile Reach as it relates to Ruedi Reservoir. Increased diversions under the proposed Moffat Project would have minimal to no influence on releases from Ruedi Reservoir for endangered fish flow purposes or storage levels in Ruedi Reservoir for the following reasons. In below average years and dry years like 2002, Denver Water would not divert additional water due to the proposed Moffat Project because Denver Water would already divert the maximum amount physically and legally available under their existing water rights without additional storage in their system. Under the Proposed Action to meet USFWS flow recommendations for endangered fish in the 15-Mile, Recovery Program water would be available for release from Ruedi Reservoir in late summer and fall. In average and wet years, Recovery Program water would typically be released from Ruedi Reservoir from mid-August through late

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		October. During those months, average and wet year flows in the Colorado River near Kremmling would decrease by 1% or less due to the Moffat Project. Decreases in flow of this magnitude would have negligible impact on the magnitude and timing of releases from Ruedi Reservoir for the endangered fish program. A provision for releases from other reservoirs such as Williams Fork Reservoir is therefore not needed. The USFWS determined that the Moffat Project fits under the umbrella of the Colorado River Programmatic BO for Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program action in the Upper Colorado River above the confluence with the Gunnison River. ***Comment #743-4*** *(ID 3401)**:*** *The most obvious flaw in the projected stream flow analysis within the DEIS is its failure to address the single biggest potential change to the Colorado River; the reduction or elimination of a call at the Xcel Shoshone Power Plant. Recent shutdowns and slowdowns at the power plant present this potentiality as a very real probability. Should the water rights associated with the Shoshone Power Plant not be called, the river conditions will be radically different from that contemplated in the DEIS. This fact alone creates a fatal flaw within the document.* **Response #743-4:** The Shoshone call reduction per the agreement between Denver Water and Xcel Energy (Shoshone Agreement) is analyzed as a reasonable foreseeable action in DEIS Section 5.3.1 under the subheading Reduction of Xcel Energy's Shoshone Power Plant Call. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. Denver Water diverted an additional 4,739 AF in 2003 (voluntary call reduction) and 14,141 AF in 2004 (maintenance) due to the relaxation of

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		the Shoshone call in those years. While Denver Water's diversions may increase under a Shoshone Call reduction, diversions with or without the Moffat Project would be the same since available storage capacity in Gross Reservoir would not be a limiting factor in dry years when the Shoshone Call reduction would be invoked per the Shoshone Agreement. The Shoshone Agreement would provide limited additional water to the Moffat Collection System because Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. Modeled streamflows in the Fraser River Basin would remain essentially the same with or without the Shoshone call reduction since Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. Modeled streamflows along the Colorado River downstream to the confluence with the Williams Fork River would also be similar with or without a Shoshone call since diversions at Windy Gap are more often constrained by the instream flow requirements below Windy Gap as opposed to the Shoshone call. Windy Gap did not divert any additional water when the Shoshone call was off in 2004 which is considered typical of Windy Gap benefits during call reductions. While Windy Gap gained more water in 2003 due to the Shoshone call relaxation, the supply available to Windy Gap was higher in 2003 than it would likely be in most years the call is relaxed. Late-season snow increased runoff significantly in 2003 which resulted in a considerably more water available for Windy Gap pumping than would normally be the case when the call is relaxed per the terms of the current agreement. The elimination of a call at the Xcel Shoshone Power Plant was not considered as a reasonably foreseeable future action because there isn't reasonable certainty as to the likelihood of that action occurring within the same projected time period at the Moffat Project.

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		Comment #743-6 *(ID 3400)**:*** *Buried within the DEIS, in a location not readily apparent, in a manner not promoting full discussion and debate, is the description of the action alternatives effect on the west slope. The DEIS must completely discuss the recreational, scenic and ecological importance of the Colorado River to the overall tourist and recreational economies with attention to the impact of the economic sectors on the overall economic health and sustained property values of west slope communities. This discussion to be meaningful, must relate these economic conditions to not only minimum river flows, but such flows needed to sustain a vital west slope economy. Beyond the broad brush and cursory treatment of the DEIS, such a detailed and disclosed examination of I the effect of additional diversion out of the upper Colorado on west slope communities is not examined.* **Response #743-6:** The socioeconomic impact analysis takes into account the conclusions of a number of other resources, including surface water, recreation, visual resources, aquatic resources and others. The evaluation of socioeconomic impacts to Grand County in DEIS Section 4.17 considers these conclusions in assessing Project impacts on tourism and related sectors. The analysis of socioeconomic impacts to Grand County was reviewed and expanded as appropriate in FEIS Section 5.19 and included a discussion of the importance of the Colorado River. ***Comment #743-3*** *(ID 3399)**:*** *Finally, any resulting record of decision relating to the Moffat Tunnel Collection System Project must include protocols for increase mitigation should any of the assumptions in the DEIS prove to be false, such as the failure of the Shoshone call to protect sufficient flows for the endangered fish program, or if the proposed mitigation efforts are found insufficient to maintain the health of the Fraser River system or compliance with the Programmatic Biological Opinion for the 15-mile Reach.*

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		Response #743-3: If a Section 404 Permit is issued for the proposed Project, a complete list of mitigation requirements would be included. In addition, an adaptive management plan will be required as part of a Section 404 Permit. ***Comment #743-1*** *(ID 3398)**:*** *Pitkin County representatives are available to discuss these issues further if it would be helpful.* **Response #743-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment #745 Duane Scholl, President Middle Park Water Conservancy District 62495 US Highway 40, P.O. Box 145 Granby, CO 80446 and Sandy Alexander, Legal Assistant Cazier, McGowan & Walker 62495 US Highway 40, P.O. Box 500 Granby, CO 80446	From: Cazier Mcgowan and Walker [redacted] Sent: Tuesday, March 16, 2010 3:02 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection System Project, Draft EIS Please find transmitted herewith a letter dated March 12, 2010 from Middle Park Water Conservancy District regarding the Moffat Collection System Propject, Draft EIS with attachments. Sandy Alexander Legal Assistant Cazier, McGowan & Walker 62495 US Hwy 40 P.O. Box 500 Granby, CO 80446 Ph: 970-887-3376 Fax: 970-887-9430 This e-mail communication and any document attached or transmitted herewith may contain confidential or privileged information. If you are not the intended recipient, please note that any disclosure, dissemination, copying, distribution, or action taken in reliance on the contents of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone or reply e-mail and delete it from your system. Thank you. - MPWSD Corp Eng ltr 031210.pdf - MPWSD CWCB Stream Flows.pdf - MPWCD USDI Ltr.pdf	***Comment #745-9*** *(ID 3439)**:*** *Please find transmitted herewith a letter dated March 12, 2010 from Middle Park Water Conservancy District regarding the Moffat Collection System Project, Draft EIS with attachments.* **Response #745-9:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #745-2*** *(ID 5255)**:*** *The Middle Park Water Conservancy District appreciates the opportunity to comment on the Draft EIS for the Moffat Collection System Project. Middle Park Water Conservancy District was formed in 1950 and its boundaries are contiguous to the boundaries of Grand and Summit County, Colorado. Accordingly, the Draft EIS, of the Moffat Collection System Project, which includes impacts in Grand and Summit County is of vital importance to Middle Park Water Conservancy District. In point of fact, Middle Park Water Conservancy District was formed as the direct result of the continuing transbasin diversion projects located within Grand and Summit County involving the City and County of Denver by and through its Board of Water Commissioners, as well as the Northern Colorado Water Conservancy District. Middle Park Water Conservancy District has historically participated in most of the settlement negotiations that have occurred over the years involving those entities' projects, as well as litigation particularly involving the Blue River Decree in Summit County. As stated by many of the entities that will be responding to the Draft EIS, the continued diversion, let alone the increased diversion, has significant impacts in both Grand and Summit Counties. Also, the development of the Moffat Project, Dillon*

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	Attachments: **MIDDLE PARK WATER CONSERVANCY DISTRICT** 62495 U.S. HIGHWAY 40 POST OFFICE BOX 145 GRANBY, COLORADO 80446 March 12, 2010 Mr. Scott Franklin, Moffat EIS Project Manager U.S. Army Corp of Engineers, Omaha District Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 Sent By Email: To: moffat.eis@usace.army.mil Re: Moffat Collection System Project, Draft EIS Dear Mr. Franklin: The Middle Park Water Conservancy District appreciates the opportunity to comment on the Draft EIS for the Moffat Collection System Project. Middle Park Water Conservancy District was formed in 1950 and its boundaries are contiguous to the boundaries of Grand and Summit County, Colorado. Accordingly, the Draft EIS, of the Moffat Collection System Project, which includes impacts in Grand and Summit County is of vital importance to Middle Park Water Conservancy District. In point of fact, Middle Park Water Conservancy District was formed as the direct result of the continuing transbasin diversion projects located within Grand and Summit County involving the City and County of Denver by and through its Board of Water Commissioners, as well as the Northern Colorado Water Conservancy District. Middle Park Water Conservancy District has historically participated in most of the settlement negotiations that have occurred over the years involving those entities' projects, as well as litigation particularly involving the Blue River Decree in Summit County. As stated by many of the entities that will be responding to the Draft EIS, the continued diversion, let alone the increased diversion, has significant impacts in both Grand and Summit Counties. Also, the development of the Moffat Project, Dillon Reservoir and the Colorado Big Thompson	*Reservoir and the Colorado Big Thompson Project occurred prior to NEPA requirements. The impacts of those projects have never withstood the rigors of a NEPA analysis as to the environmental consequences thereof. Accordingly, the importance of the accuracy of the Moffat Collection System Project Draft EIS cannot be overstated. PREFACE The Middle Park Water Conservancy District Board of Directors has been engaged, together with other West Slope entities, in negotiations with the City and County of Denver by its Board of Water Commissioners in negotiations to settle a number of disputes including the issues presented in the Moffat Expansion EIS. Those negotiations are likely to continue for some period of time. If those negotiations are successful and Middle Park Water Conservancy District enters into a Settlement Agreement involving the Denver Water Board, as well as others, the Board of Directors of Middle Park Water Conservancy District will withdraw its comments to the Moffat Expansion Draft EIS. Project occurred prior to NEPA requirements. The impacts of those projects have never withstood the rigors of a NEPA analysis as to the environmental consequences thereof. Accordingly, the importance of the accuracy of the Moffat Collection System Project Draft EIS cannot be overstated.* **Response #745-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #745-8*** *(ID 3437)**:*** *PROJECT PURPOSE AND NEEDS STATEMENT* *As has been commented in public meetings and certainly will be reiterated in written comments, the Purpose and Need Statement has been stated so narrowly that it is almost impossible for many alternate projects to meet those requirements. Obviously Middle Park doesn't have independent knowledge of all of the projects that could effectively forestall the need for this project. Undoubtedly*

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	MPWCD March 11, 2010 Page 2 Project occurred prior to NEPA requirements. The impacts of those projects have never withstood the rigors of a NEPA analysis as to the environmental consequences thereof. Accordingly, the importance of the accuracy of the Moffat Collection System Project Draft EIS can not be overstated. PREFACE The Middle Park Water Conservancy District Board of Directors has been engaged, together with other West Slope entities, in negotiations with the City and County of Denver by its Board of Water Commissioners in negotiations to settle a number of disputes including the issues presented in the Moffat Expansion EIS. Those negotiations are likely to continue for some period of time. If those negotiations are successful and Middle Park Water Conservancy District enters into a Settlement Agreement involving the Denver Water Board, as well as others, the Board of Directors of Middle Park Water Conservancy District will withdraw its comments to the Moffat Expansion Draft EIS.	*there are some and they need to be fully evaluated for the purposes of providing additional water supply to Denver versus this project.* **Response #745-8:** The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. ***Comment #745-7*** *(ID 3436)**:*** *CONSERVATION* *Based upon the information available it seems to be undisputed that the Denver Water Board has been successful in recent years in cutting back its demand based upon conservation. As with all water providers,*

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	MPWCD March 11, 2010 Page 2 Project occurred prior to NEPA requirements. The impacts of those projects have never withstood the rigors of a NEPA analysis as to the environmental consequences thereof. Accordingly, the importance of the accuracy of the Moffat Collection System Project Draft EIS can not be overstated.	*there seems to be a considerable amount of resistance to being wholly dependent on conservation since it is based upon human behavior as well as climatic conditions. One of the issues that comes out every time we look at conservation in Colorado is how rigorous the analysis is and that there is an election by many water diverters to ignore conservation as being unreliable. There are items that are being pursued including state mandates with respect to replacement of inefficient water fixtures and encouraging the sale of only water efficient appliances in the State of Colorado that will reduce the demand for water in the future. Additionally, any EIS should look carefully at the range of Best Management Practices available that are generated not only in the State of Colorado but in other areas such as Nevada, New Mexico and even Australia which have undergone significant drought problems. Are those measures fully evaluated and incorporated in the conservation measures and should they be, and if they are, are there additional savings that would prevent the necessity for this project at this time?* **Response #745-7:** Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e. 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of

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	MPWCD March 11, 2010 Page 3 PROJECT PURPOSE AND NEEDS STATEMENT As has been commented in public meetings and certainly will be reiterated in written comments, the Purpose and Need Statement has been stated so narrowly that it is almost impossible for many alternate projects to meet those requirements. Obviously Middle Park doesn't have independent knowledge of all of the projects that could effectively forestall the need for this project. Undoubtedly there are some and they need to be fully evaluated for the purposes of providing additional water supply to Denver versus this project.	all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Comment #745-1*** *(ID 3435)**:*** *UNITED STATES FOREST SERVICE - INSTREAM FLOWS* *One of the more perplexing elements of the review of this Draft EIS is that it clearly states that there has been a lack of involvement by the United States Forest Service. There is no doubt that there will be impacts at Gross Reservoir, as well as additional impacts on the national forest involving the Fraser River, Blue River, and Colorado River drainages. It is interesting to note that FERC requires mandatory bypasses out of Williams Fork Reservoir versus instream flows in the Upper Fraser or out of Dillon Reservoir that are somewhat discretionary. Historically, because of Denver's occupation of the Forest Service, it has been necessary to obtain permits and rights of way. Obviously environmental concerns were somewhat limited as to any restrictions in those special use permits and right of ways in the early 1900s. Paragraph 13 of the Denver Water Board Special Use Permit in 1955 reads as follows: To cooperate with the Colorado Game and Fish Department in protecting, maintaining and improving the fish and wildlife values of the area involved. In the event it is necessary to divert water from any of the drainage in such quantities that it would be dangerous to fish production below the diversion point, the proper officials of the City and County of Denver will notify the Colorado Game &Fish Department in advance of its intention to make increased diversions. In the event such diversion or diversions may result in a loss of fish environment, the City and County of Denver, acting by and through its Board of Water Commissioners, agrees to negotiate with the Colorado Game and Fish Department concerning financial compensation for any agreed loss." Obviously not a very*

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	MPWCD March 11, 2010 Page 4 CONSERVATION Based upon the information available it seems to be undisputed that the Denver Water Board has been successful in recent years in cutting back its demand based upon conservation. As with all water providers, there seems to be a considerable amount of resistance to being wholly dependent on conservation since it is based upon human behavior as well as climatic conditions. One of the issues that comes out every time we look at conservation in Colorado is how rigorous the analysis is and that there is an election by many water diverters to ignore conservation as being unreliable. There are items that are being pursued including state mandates with respect to replacement of inefficient water fixtures and encouraging the sale of only water efficient appliances in the State of Colorado that will reduce the demand for water in the future. Additionally, any EIS should look carefully at the range of Best Management Practices available that are generated not only in the State of Colorado but in other areas such as Nevada, New Mexico and even Australia which have undergone significant drought problems. Are those measures fully evaluated and incorporated in the conservation measures and should they be, and if they are, are there additional savings that would prevent the necessity for this project at this time?	*definitive requirement for protection of the environment. As noted in the Draft EIS, there are many streams with no bypasses by Denver which Middle Park believes would be required in any new EIS analysis for a new project. Attached is a copy of a map showing the various instream flows in the Upper Fraser Valley and would note the number of tributaries with no bypasses. [SEE FIGURE IN ATTACHMENT FILE.] In 1970 it became necessary for the United State Department of the Interior to amend the right of way for Denver's Fraser Diversion Project and issued a new Amendatory decision. A copy of that decision is attached to this letter. Important items to note from that decision include: 1. There is no analysis of the quantity of water that is necessary in any of the streams. 2. The EIS notes that some of the streams that don't have bypass flows are capable of supporting fish. 3. The bypass flows for the Fraser River diversions by Denver are not measured until approximately 3.3 miles below the point of diversion as shown on the attached map. 4. The bypass flows have always been subject to the right by Denver to reduce those flows under certain circumstances. Even though the Draft EIS mentions the restriction on reducing those bypass flows if and when there is a restriction placed on in-house use on the West Slope and the East Slope, that provision has never been utilized. 5. Paragraph 5 of the decision remains in full force and effect and basically allows Denver to reduce bypass flows when they "impose restrictions on the use water in the area served by the Board due to insufficient water supply". In other words, a slight restriction on outdoor use in Denver could restrict the amount of water in the streams that is available in the West Slope and in particular the Upper Fraser Valley. The EIS indicates that without the project the Denver Water Board could dip into their instream bypasses many more times in the future than they have in the past. Accordingly the Draft EIS needs to look very closely at the impacts and mitigation that will be necessary to prevent the dewatering of this area and would assume that the Forest Service would, if they would have participated in this process, outlined*

Comment Information	Comment	Comments and Responses
	MPWCD March 11, 2010 Page 5 UNITED STATES FOREST SERVICE - INSTREAM FLOWS One of the more perplexing elements of the review of this Draft EIS is that it clearly states that there has been a lack of involvement by the United States Forest Service. There is no doubt that there will be impacts at Gross Reservoir, as well as additional impacts on the national forest involving the Fraser River, Blue River, and Colorado River drainages. It is interesting to note that FERC requires mandatory bypasses out of Williams Fork Reservoir versus instream flows in the Upper Fraser or out of Dillon Reservoir that are somewhat discretionary. Historically, because of Denver's occupation of the Forest Service, it has been necessary to obtain permits and rights of way. Obviously environmental concerns were somewhat limited as to any restrictions in those special use permits and right of ways in the early 1900s. Paragraph 13 of the Denver Water Board Special Use Permit in 1955 reads as follows: To cooperate with the Colorado Game and Fish Department in protecting, maintaining and improving the fish and wildlife values of the area involved. In the event it is necessary to divert water from any of the drainage in such quantities that it would be dangerous to fish production below the diversion point, the proper officials of the City and County of Denver will notify the Colorado Game & Fish Department in advance of its intention to make increased diversions. In the event such diversion or diversions may result in a loss of fish environment, the City and County of Denver, acting by and through its Board of Water Commissioners, agrees to negotiate with the Colorado Game and Fish Department concerning financial compensation for any agreed loss." Obviously not a very definitive requirement for protection of the environment. As noted in the Draft EIS, there are many streams with no bypasses by Denver which Middle Park believes would be required in any new EIS analysis for a new project.	*preventive measures. For contrast the record of the decision on the Williams Fork gravity pumping permit by the Forest Service required the following in 1992: 2. Operating Plan - The Board shall prepare an Operating Plan, revised annually, that describes winter and summer operations. The Plan addresses factors such as safety, diversion operations, by-pass flows, overflow procedures, road maintenance, vegetative management, and operational practices and requirements to insure that stream channels are not overloaded and thus damaged or scoured and that by-pass flows are sufficient to provide stream channel maintenance and protect fisheries where designated. Designations are as follows: a) Instream By-Pass Flows: The Board will provide by-pass flows consistent with Forest Service Policy, as described in the Forest Service Manual 2541.12, "Determine quantities of water needed to maintain instream flows for recreation, fish and wildlife and other uses, as well as activities and uses associated with timber production and securing favorable conditions of water flow". Bypass flows will be required at diversion sites in the following creeks: Webb, Steelman, Bobtail, McQueary, Eleventh, and Darling to maintain certain flow levels on those creeks and on the main stem of the Williams Fork River below Steelman Creek and near the USGS gauge at Leal. The Forest Supervisor may designate other streams for by-pass flows as operations are monitored to ensure the functioning of the entire Williams Fork drainage system. Part of this monitoring effort will require the continued operation of existing USGS gauging stations in the upper Williams Fork by the Board in cooperation with the USGS. The intent of this provision is to protect the watershed including the stream channels and the fisheries habitat. By-pass flow requirements will be based on a dynamic hydrograph that adjusts to the actual streamflow hydrograph each year, to be determined from site-specific hydrologic data collected at each point of diversion and on the Williams Fork below Steelman Creek and near the USGS gauge at Leal. This process will be pursuant to the procedures*

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	MPWCD March 11. 2010 Page 6 Attached is a copy of a map showing the various instream flows in the Upper Fraser Valley and would note the number of tributaries with no bypasses. In 1970 it became necessary for the United State Department of the Interior to amend the right of way for Denver's Fraser Diversion Project and issued a new Amendatory decision. A copy of that decision is attached to this letter. Important items to note from that decision include: 1. There is no analysis of the quantity of water that is necessary in any of the streams. 2. The EIS notes that some of the streams that don't have bypass flows are capable of supporting fish. 3. The bypass flows for the Fraser River diversions by Denver are not measured until approximately 3.3 miles below the point of diversion as shown on the attached map. 4. The bypass flows have always been subject to the right by Denver to reduce those flows under certain circumstances. Even though the Draft EIS mentions the restriction on reducing those bypass flows if and when there is a restriction placed on in-house use on the West Slope and the East Slope, that provision has never been utilized. 5. Paragraph 5 of the decision remains in full force and effect and basically allows Denver to reduce bypass flows when they "impose restrictions on the use water in the area served by the Board due to insufficient water supply". In other words, a slight restriction on outdoor use in Denver could restrict the amount of water in the streams that is available in the West Slope and in particular the Upper Fraser Valley. The EIS indicates that without the project the Denver Water Board could dip into their instream bypasses many more times in the future than they have in the past.	*set forth in the Forest Service Handbook 2509.17 utilizing the most recent technical developments available for quantifying in-stream flows for channel maintenance and riparian habitat protection purposes. Site-specific hydrologic data will include monitoring information gathered during the initial years of operation and information from the Board pertaining to the desired operational practices. Equipment for an efficient monitoring system will be installed by the Board at diversions requiring by-pass flows and this equipment will be made available to the Forest Service Project Coordinator as prescribed. Additional requirements may be added, if necessary, to insure protection of the Colorado River Cutthroat Trout. Obviously, since 1992, the United States Forest Service requirements have changed. However, there is little doubt that any new permit that was granted by the United States Forest Service as part of any new diversion would require major permit by-pass requirements. The question actually is whether that can be required even without the modification of any permits. There is one other item worth noting that is not addressed qualitatively anywhere in the Draft EIS and that does impact water availability in the Fraser River. Denver has purchased a significant number of water rights in the Upper Fraser and ceased utilizing those water rights for irrigation purposes. Originally when Denver began its project it had to bypass water for those water rights and accordingly return flows in the Upper Fraser were significant and increased much of the flow through the Fraser and down to the Colorado River which no longer occurs. This is one of the reasons why there wasn't significant opposition originally to Denver's Fraser project in that it really didn't adversely affect senior water rights. However, since Denver has purchased those water rights and retired them, the whole entire regime of the Fraser River has changed as well as the flows that are available above the by-pass flows. Another issue that is not in fact discussed is the status of in-stream flows adjudicated by the Colorado Water Conservation Board and the fact that they are ignored in*

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	MPWCD March 11, 2010 Page 7 Accordingly the Draft EIS needs to look very closely at the impacts and mitigation that will be necessary to prevent the dewatering of this area and would assume that the Forest Service would, if they would have participated in this process, outlined preventive measures. For contrast the record of the decision on the Williams Fork gravity pumping permit by the Forest Service required the following in 1992: 2. Operating Plan - The Board shall prepare an Operating Plan, revised annually, that describes winter and summer operations. The Plan addresses factors such as safety, diversion operations, by-pass flows, overflow procedures, road maintenance, vegetative management, and operational practices and requirements to insure that stream channels are not overloaded and thus damaged or scoured and that by-pass flows are sufficient to provide stream channel maintenance and protect fisheries where designated. Designations are as follows: a) Instream By-Pass Flows: The Board will provide by-pass flows consistent with Forest Service Policy, as described in the Forest Service Manual 2541.12, "Determine quantities of water needed to maintain instream flows for recreation, fish and wildlife and other uses, as well as activities and uses associated with timber production and securing favorable conditions of water flow". By-Pass flows will be required at diversion sites in the following creeks: Webb, Steelman, Bobtail, McQueary, Eleventh, and Darling to maintain certain flow levels on those creeks and on the main stem of the Williams Fork River below Steelman Creek and near the USGS gauge at Leal. The Forest Supervisor may designate other streams for by-pass flows as operations are monitored to ensure the functioning of the entire Williams Fork drainage system. Part of this monitoring effort will require the continued operation of existing USGS gauging stations in the upper Williams Fork by the Board in cooperation with the USGS.	*the EIS. The map shows those EIS flows. Additionally, below the confluence of the Fraser and Colorado Rivers there are adjudicated stream flows of 90 cfs and down to the confluence of the Blue River of 135 cfs and 150 cfs. These are judged as the minimum necessary to support the aquatic environment in this section of the river and there is no discussion in the EIS of the impacts of taking this water away from that section. ATTACHMENT United States Department of Interior Bureau of Land Management Colorado Land Office Room 1513 Federal building 1961 Stout Street Denver, Colorado 80202 April 22, 970 Certified Mail Decision Board of Water Commissioners City and County of Denver Right of Way Amendatory Decision By Land Office decision dated January 12, 1926, a right of way for the Fraser River Diversion Project was granted to the City and County of Denver under Denver serial number 027914. Stipulations numbered 1-18, which were prepared by the U. S. Forest Service for the protection of the Arapaho National Forest were made part of the right of way grant. These stipulations were executed by the City and county of Denver acting by and through its Board of Water Commissioners on May 19, 1955. Proof of construction was subsequently accepted by the Bureau of Land Management on July 1, 1965. On January 21, 1970, the Bureau of Sports Fisheries and Wildlife recommended that Forest Service stipulation number 13 be superseded by the attached stipulations. The Board of Water Commissioners, U.S. Forest Service and the Bureau of Land Management have concurred in this recommendation. Therefore, the Land Office decision of January 12, 1926 is hereby amended accordingly. All other terms and conditions of the decision dated January 12, 1926 remain unchanged and in full force and effect. Everett K. Weedin Supervisor Adjudicator Branch of Lands Bureau of Sport fisheries and Wildlife Stipulations To realize the fishery potential of the Fraser River and its tributaries and to provide a reasonable degree of protection for fish habitat, the Board will: 1. Control the releases of water into Vasquez Tunnel to avoid*

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	MPWCD March 11, 2010 Page 8 The intent of this provision is to protect the watershed including the stream channels and the fisheries habitat. By-pass flow requirements will be based on a dynamic hydrograph that adjusts to the actual streamflow hydrograph each year, to be determined from site-specific hydrologic data collected at each point of diversion and on the Williams Fork below Steelman Creek and near the USGS gauge at Leal. This process will be pursuant to the procedures set forth in the Forest Service Handbook 2509.17 utilizing the most recent technical developments available for quantifying in-stream flows for channel maintenance and riparian habitat protection purposes. Site-specific hydrologic data will include monitoring information gathered during the initial years of operation and information from the Board pertaining to the desired operational practices. Equipment for an efficient monitoring system will be installed by the Board at diversions requiring by-pass flows and this equipment will be made available to the Forest Service Project Coordinator as prescribed. Additional requirements may be added, if necessary, to insure protection of the Colorado River Cutthroat Trout. Obviously, since 1992, the United States Forest Service requirements have changed. However, there is little doubt that any new permit that was granted by the United States Forest Service as part of any new diversion would require major permit by-pass requirements. The question actually is whether that can be required even without the modification of any permits. There is one other item worth noting that is not addressed qualitatively anywhere in the Draft EIS and that does impact water availability in the Fraser River. Denver has purchased a significant number of water rights in the Upper Fraser and ceased utilizing those water rights for irrigation purposes. Originally when Denver began its project it had to bypass water for those water rights and accordingly return flows in the Upper Fraser were significant and increased much of the flow through the	*unreasonable or unnecessary erosion of the natural channel of Vasquez Creek below the tunnel outlet. 2. Protect the stream channel and stream banks through such measures as are necessary and approved by the Forest Service to avoid unreasonable or unnecessary damage from the increased flow of water incident to diversion of water through the tunnel. 3. Subject to lawful regulations by public authority and not in derogation of the water rights owned by the Board granted in accordance with the laws of Colorado: a. Bypass a the Fraser Diversion Dam sufficient water to cause a minimum flow of ten second-feet at the gauging station located approximately one mile below Winter Park, or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and four second-feet or the natural inflow, whichever is less, for the rest of the year. b. Bypass at the Vasquez Creek Diversion Dam a minimum flow of eight second-feed of water or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and three second-feet or the natural inflow in Vasquez Creek, whichever is less, for the remainder of the year. c. Bypass at the St. Louis Creek Diversion Dam a minimum flow of ten second-feet of water or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and three second-feed or the natural inflow, whichever is less, for the remainder of the year. d. Bypass at the Ranch Creek Diversion Dam a minimum flow of four second-feet of water or the natural inflow of the stream, whichever is less, from May 15 to September 15, inclusive; and two second-feet or the natural inflow, whichever is less, for the rest of the year. e. The release criteria is established in 3a through 3d, inclusive, above, are subject to the following: (1) For the period September 16 through May 14, by passes will be so made, except when in the opinion of the Board to do so would impair the operations of the water works system. (2) If at any time the amount of water in storage in Gross Reservoir is less than 25,000 acre-feet, the bypasses may be reduced at the rate of six percent, or by the nearest one-half second-foot, per each 1,000*

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	MPWCD March 11, 2010 Page 9 Fraser and down to the Colorado River which no longer occurs. This is one of the reasons why there wasn't significant opposition originally to Denver's Fraser project in that it really didn't adversely effect senior water rights. However, since Denver has purchased those water rights and retired them, the whole entire regime of the Fraser River has changed as well as the flows that are available above the by-pass flows. Another issue that is not in fact discussed is the status of in-stream flows adjudicated by the Colorado Water Conservation Board and the fact that they are ignored in the EIS. The map shows those EIS flows. Additionally, below the confluence of the Fraser and Colorado Rivers there are adjudicated stream flows of 90 cfs and down to the confluence of the Blue River of 135 cfs and 150 cfs. These are judged as the minimum necessary to support the aquatic environment in this section of the river and there is no discussion in the EIS of the impacts of taking this water away from that section.	*acre-feet of storage water, below 25,000 acre-feet. 4. In the event the Board plans to modify or build new diversion structures for which a Federal permit is not required, the Board should consult with the Colorado Division of Game, Fish and Parks, the Forest Service, and the Bureau of Sport Fisheries and Wildlife, to consider the establishment of suitable fish habitat in the pools above these structures. 5. If at any time it becomes necessary for the Board to impose restrictions on the use of water in the area served by the Board due to insufficient water supply, the releases provided for in paragraphs 3a through 3c above may further be reduced by the Board in accordance with the severity of the restrictions. When the Board determines that said reductions are necessary, it shall consult with the Colorado Game, Fish and Parks Commission regarding said reductions. Although mutual agreement is not required, the Board shall act in good faith in consulting with the Colorado Game, Fish and Parks Commission and in imposing any reduction in releases. 6. In the event water rights are hereafter perfected or the water presented thereby is put to beneficial use by persons or entities other than the Board and the Colorado Division of Game, Fish and Parks resulting in the diversion of water bypassed in accordance with paragraphs 3a through 3d above, then said bypasses shall be reduced to the extent of such diversions.* **Response #745-1:** Role of USFS in the Moffat Project EIS As stated in DEIS Section 1.0, although the USFS was invited to be a Cooperating Agency at the beginning of the permitting process, they declined. Despite not having a Cooperating Agency role in the EIS process, the Corps has held numerous meetings with the USFS to understand its concerns related to the Moffat Project. Per consultation with the USFS, the FEIS analysis was updated to include current lists of USFS Sensitive Species, Management Indicator Species, and rare/local concern plants (FEIS Section 3.10 and Appendix G).

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	MPWCD March 11, 2010 Page 10 OTHER SIGNIFICANT ISSUES In reviewing the information available, there are a lot of good technical issues raised. Specific issues that are important to note otherwise: 1. The Draft EIS is formulated based upon the way that Denver indicates it will operate their project. However, there is no requirement that Denver can only divert during wet and average years and only take so much water and what the average will be. Unless there is a provision requiring adaptive management that preserves the viability of the Fraser, Blue and Colorado Rivers, there should be a condition restricting exactly how much and when Denver can utilize the water that will be made available by this project. 2. As has been repeatedly stated, the drought of 2002 - 2003 needs to be looked at critically since it may change the averages under the record period that is looked at in the Draft EIS. Additionally, there is an assumption that between 2006 and 2016, Denver is unable to develop other projects such as increased conservation that may in fact defer or negate the need for this project. 3. The relationship of Denver's water rights and agricultural use has been somewhat blurred. A portion of the Draft EIS, on Page 3 -18, notes that Denver's water rights are junior to many of the water rights in the Basin. As previously indicated, in the Fraser River Basin, Denver has bought most of the senior water rights and so there is very little impact by any remaining agricultural water rights on Denver. Additionally, at another point in the draft EIS is a statement that municipalities can obtain additional water by purchasing additional agricultural water rights. Obviously, since there aren't any in the vicinity, because Denver has bought those water rights, that is an incorrect statement. The one statement devoted to Denver's water purchase of agricultural water rights fails to elaborate on the overall impact of Denver's purchase of agricultural water rights. Since Denver's utilization of that water is 100% consumptive	Additional sensitive species surveys were conducted by the Corps at Gross Reservoir during the summer of 2010 after coordination with the USFS Arapaho & Roosevelt National Forests botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. The results are summarized in FEIS Sections 3.7.1 and 5.7.1), and are described in more detail in the Special Status Species Technical Report (Appendix G). Federal Energy Regulatory Commission (FERC) Bypass Flow Requirements FERC's requirement to have a minimum bypass out of the Williams Fork Reservoir is under the FERC hydropower license to operate Williams Fork Reservoir and is unrelated to the FERC hydropower license for Gross Reservoir. The bypass at Williams Fork Reservoir was discussed on DEIS page 3-35. Additionally, Williams Fork Reservoir is not located on USFS land and Denver Water owns all the land occupied by Williams Fork dam and reservoir. Amendatory Decision by the U.S. Department of the Interior, Bureau of Reclamation for the Fraser Diversion Project (1970) Denver Water complied with all environmental regulations at the time of construction of all facilities. While the environmental regulations and minimum flow requirements have changed since the construction of these projects, and would likely change in the future, it is an impact that has already occurred and is unrelated to the proposed Moffat Project. 1. The quantity of water needed for the aquatic environment is discussed in DEIS Sections 4.1 and 4.9. 2. The DEIS states that some streams do not have bypass flows and support aquatic populations. All minimum bypass requirements are listed in Table 3.1-8.

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	MPWCD March 11, 2010 Page 11 to the Basin, the return flows are no longer available downstream, which creates a much greater environmental impact than the historic irrigation use. The citation on acquiring additional water is found in - 4 - 441 of the Draft EIS. 4. Water Quality. As has been noted, the very small population in Grand County has spent millions of dollars (probably $20 million plus) to improve wastewater treatment facilities. Those treatment facilities were designed to treat under existing chronic and acute standards of the Colorado Department of Public Health and Environment. Denver's removal of additional water in the future will increase the likelihood of those wastewater facilities exceeding their permit requirements because there is not enough dilution flows for the chronic/acute standards and is clearly a huge detrimental environmental impact on the Fraser River. Additionally, the Fraser River has been classified 303 (d) for temperature, as well as monitoring for copper. Middle Park believes this is the result from the hearing by the Colorado Department of Public Health and Environment of February 9, 2010. 5. Reuse. As has been previously stated many times, the reuse of water diverted from the Blue River is a requirement under the Blue River Decree. Reuse is a significant resource and while Middle Park applauds Denver's efforts at continuing reuse, the EIS and any mitigation needs to require full utilization of any reuse water prior to utilization of additional West Slope supplies. It is a no-brainer that minimizing the amount of water diverted from the West Slope will do less environmental damage. Accordingly, reuse needs to be an important component of any future water supply for Denver. 6. As to other potential projects or water use that are alternatives to this project include: additional conservation; additional reuse; the Shoshone Agreement which even though mentioned in the cumulative impacts doesn't state that it provides a significant new yield to Denver that could be in lieu of this project; the additional water made available by the Big	3. Denver Water confirmed that all bypass flows are measured at the locations required by its agreements. 4. In 2002, 2003, and 2004, Denver Water reduced the bypass flows at four locations on the Fraser River Collection System: Fraser River, Vasquez Creek, Little Vasquez Creek, and Ranch Creek. 5. Presently, in order for Denver Water to reduce the bypass flows on the Fraser River Collection System, Denver Water must impose mandatory restrictions on its customers, as stated in DEIS Section 3.1.5.1. The permitting of the proposed Moffat Project would not change this requirement. The CRCA, which is discussed in FEIS Appendix M, contains additional restrictions on when Denver Water could reduce bypass flows on the West Slope. These new restrictions limit the ability of Denver Water to reduce bypass flows to those times when Denver Water has banned outdoor watering. If the No Action Alternative occurs, no mitigation would be required by the Corps because no Section 404 Permit would be required. The Upper Williams Fork Collection System would not be expanded by the proposed Moffat Project. Therefore, the provisions that deal with an expansion of the Upper Williams Fork Collection System are irrelevant to this permitting process. Denver Water has proposed mitigation that would help preserve and enhance Colorado River cutthroat trout habitat. Refer to FEIS Appendix M for a description of this conceptual mitigation. Denver Water would operate the proposed Moffat Project in accordance with Colorado Water Law. Any bypasses to senior downstream water rights would be made. Denver Water does not need to purchase or modify any water rights with the proposed Moffat Project (see DEIS Section 3.1).

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	MPWCD March 11, 2010 Page 12 Lake Ditch transfer; the development of the Williams Fork gravity pumpback that has already been authorized by the United States Forest Service; as well as the potential additional development of ground water in the Denver Basin. 7. As with any water development of this magnitude, there are a number of additional legal issues. It should be noted that the status of the decrees involving the water rights are not without dispute. 8. With respect to the Dillon Reservoir bypass flows, the statement in Paragraph on Page 4 - 81 indicating that there is no indication that Denver will reduce Dillon Reservoir bypasses is certainly not worth banking on. Are they or are they not? Surely at a minimum that mitigation requirement can be inserted in this permit. In summary, there are a lot of issues that need to be addressed in the Draft EIS. The complete lack of any mitigation, when there are clear water quality impacts, as well as impacts to the environment by dewatering of various streams in the Fraser and Blue Rivers is contrary to the spirit of NEPA, as well as permitting requirements of the Corps of Engineers. Very truly yours, Duane Scholl, President	***Comment #745-6*** *(ID 3434)**:*** *OTHER SIGNIFICANT ISSUES* *In reviewing the information available, there are a lot of good technical issues raised. Specific issues that are important to note otherwise: 1. The Draft EIS is formulated based upon the way that Denver indicates it will operate their project. However, there is no requirement that Denver can only divert during wet and average years and only take so much water and what the average will be. Unless there is a provision requiring adaptive management that preserves the viability of the Fraser, Blue and Colorado Rivers, there should be a condition restricting exactly how much and when Denver can utilize the water that will be made available by this project.* **Response #745-6:** The proposed Moffat Project would not affect low flows because there would be no additional diversions in dry years due to the Moffat Project. In dry years and late in the summer, Denver Water already diverts the maximum amount physically and legally available under their existing water rights and infrastructure without additional storage in its system, in which case, there would be no further reduction in low flows due to the proposed Moffat Project. Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Comment #745-5*** *(ID 3433)**:*** *As has been repeatedly stated, the drought of 2002 - 2003 needs to be looked at critically since it may change the averages under the record period that is looked at in the Draft EIS. Additionally, there is an assumption that between 2006 and 2016, Denver is unable to develop other projects such as increased conservation that may in fact defer or negate the need for this project.*

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	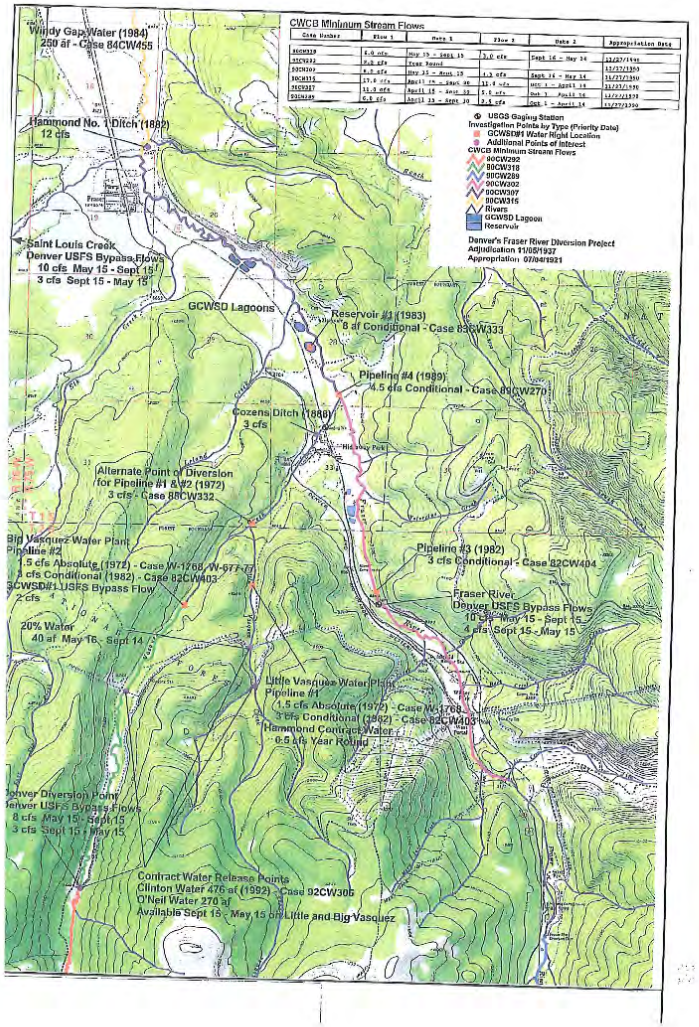	**Response #745-5:** The model period used in the DEIS from 1947 through 1991 provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts. A separate assessment of the 2002-2003 period was completed by Denver Water to determine whether inclusion of an extreme drought year would change conclusions regarding hydrologic effects due to the Moffat Project. Results of that assessment indicated that in drought years like 2002, Denver Water would not divert additional water due to the proposed Moffat Project because Denver Water would already divert the maximum amount physically and legally available under their existing water rights without additional storage in their system. Denver Water's analysis also concluded that for Denver Water's System, the mid-1950's drought is a more severe drought period than the recent drought. Extension of the modeling period would not substantially change the range of hydrologic conditions or the predicted impacts to flows as a result of the proposed Moffat Project. Each of the Moffat Project alternatives includes implementation of additional conservation measures to offset 16,000 AF/yr of the projected 34,000 AF/yr shortfall in 2032. These additional conservation measures reduce the requirements for new water supplies from the Upper Colorado River Basin. Denver Water plans to reduce its demand by 16,000 AF/yr by 2032 with additional conservation measures, which are anticipated to achieve long-term sustainable reductions in water use. Denver Water is relying upon these future savings in its demand projections to calculate the need for 18,000 AF/year of new firm yield. Refer to FEIS Sections 1.4.1.2 and 1.4.3.1 and Appendix A for a discussion of Denver Water's conservation efforts. ***Comment #745-4*** *(ID 3432)**:*** *The relationship of Denver's water rights and agricultural use has been somewhat blurred. A portion of the Draft*

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	United States Department of the Interior BUREAU OF LAND MANAGEMENT COLORADO LAND OFFICE ROOM 1506B FEDERAL BUILDING 1961 STOUT STREET DENVER, COLORADO 80202 D-027914 - R/W April 22, 970 Certified Mail DECISION Board of Water Commissioners City and County of Denver Right of Way Amendatory Decision By Land Office decision dated January 12, 1926, a right of way for the Fraser River Diversion Project was granted to the City and County of Denver under Denver serial number 027914. Stipulations numbered 1-18, which were prepared by the U. S. Forest Service for the protection of the Arapaho National Forest were made part of the right of way grant. These stipulations were executed by the City and County of Denver acting by and through its Board of Water Commissioners on May 19, 1955. Proof of construction was subsequently accepted by the Bureau of Land Management on July 1, 1965. On January 21, 1970, the Bureau of Sports Fisheries and Wildlife recommended that Forest Service stipulation number 13 be superseded by the attached stipulations. The Board of Water Commissioners, U. S. Forest Service and the Bureau of Land Management have concurred in this recommendation. Therefore, the Land Office decision of January 12, 1926 is hereby amended accordingly. All other terms and conditions of the decision dated January 12, 1926 remain unchanged and in full force and effect. Everett K. Weedin Supervisory Adjudicator Branch of Lands RECEIVED	*EIS, on Page 3 -18, notes that Denver's water rights are junior to many of the water rights in the Basin. As previously indicated, in the Fraser River Basin, Denver has bought most of the senior water rights and so there is very little impact by any remaining agricultural water rights on Denver. Additionally, at another point in the draft EIS is a statement that municipalities can obtain additional water by purchasing additional agricultural water rights. Obviously, since there aren't any in the vicinity, because Denver has bought those water rights, that is an incorrect statement. The one statement devoted to Denver's water purchase of agricultural water rights fails to elaborate on the overall impact of Denver's purchase of agricultural water rights. Since Denver's utilization of that water is 100% consumptive to the Basin, the return flows are no longer available downstream, which creates a much greater environmental impact than the historic irrigation use. The citation on acquiring additional water is found in - 4 - 441 of the Draft EIS.* **Response #745-4:** Denver Water has water rights junior to agricultural water rights in the Fraser River Basin. Even with the agricultural water rights Denver Water has purchased, Denver Water still bypasses water to downstream senior agricultural water rights almost every year in the Fraser River Basin. Since Denver Water is not proposing to buy water rights in the Fraser River Basin for the Moffat Project, no analysis of the impacts is needed in this EIS. The EIS does evaluate Alternative 13a, which involves purchasing agricultural water rights for a portion of the 18,000 AF of supply (refer to Section 2.7). However, Alternative 13a would purchase agricultural rights in the South Platte River Basin (not the Fraser River Basin) and convert the water right to municipal uses

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	BUREAU OF SPORT FISHERIES AND WILDLIFE STIPULATIONS To realize the fishery potential of the Fraser River and its tributaries and to provide a reasonable degree of protection for fish habitat, the Board will: 1. Control the releases of water into Vasquez Tunnel to avoid unreasonable or unnecessary erosion of the natural channel of Vasquez Creek below the tunnel outlet. 2. Protect the stream channel and stream banks through such measures as are necessary and approved by the Forest Service, to avoid unreasonable or unnecessary damage from the increased flow of water incident to diversion of water through the tunnel. 3. Subject to lawful regulations by public authority and not in derogation of the water rights owned by the Board granted in accordance with the laws of Colorado: a. Bypass at the Fraser Diversion Dam sufficient water to cause a minimum flow of ten second-feet at the gauging station located approximately one mile below Winter Park, or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and four second-feet or the natural inflow, whichever is less, for the rest of the year. b. Bypass at the Vasquez Creek Diversion Dam a minimum flow of eight second-feet of water or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and three second-feet or the natural inflow in Vasquez Creek, whichever is less, for the remainder of the year. c. Bypass at the St. Louis Creek Diversion Dam a minimum flow of ten second-feet of water or the natural inflow, whichever is less, from May 15 to September 15, inclusive; and three second-feet or the natural inflow, whichever is less, for the remainder of the year. d. Bypass at the Ranch Creek Diversion Dam a minimum flow of four second-feet of water or the natural inflow of the stream, whichever is less, from May 15 to September 15, inclusive; and two second-feet or the natural inflow, whichever is less, for the rest of the year. e. The release criteria as established in 3a through 3d, inclusive, above, are subject to the following: (1) For the period September 16 through May 14, by passes will be so made, except when in the opinion of the Board to do so would impair the operations of the water works system.	***Comment #745-3*** *(ID 3431)**:*** *Water Quality* *As has been noted, the very small population in Grand County has spent millions of dollars (probably $20 million plus) to improve wastewater treatment facilities. Those treatment facilities were designed to treat under existing chronic and acute standards of the Colorado Department of Public Health and Environment. Denver's removal of additional water in the future will increase the likelihood of those wastewater facilities exceeding their permit requirements because there is not enough dilution flows for the chronic/acute standards and is clearly a huge detrimental environmental impact on the Fraser River. Additionally, the Fraser River has been classified 303 (d) for temperature, as well as monitoring for copper. Middle Park believes this is the result from the hearing by the Colorado Department of Public Health and Environment of February 9, 2010.* **Response #745-3:** Additional water quality analysis has been performed on the Fraser River, including additional evaluation of the discharge permits for wastewater treatment. FEIS Section 4.6.2 has been modified to reflect the 2012 303(d) list (as available on CDPHE's website as Regulation 93). ***Comment #745-14*** *(ID 3449)**:*** *Reuse. As has been previously stated many times, the reuse of water diverted from the Blue River is a requirement under the Blue River Decree. Reuse is a significant resource and while Middle Park applauds Denver's efforts at continuing reuse, the EIS and any mitigation needs to require full utilization of any reuse water prior to utilization of additional West Slope supplies. It is a no-brainer that minimizing the amount of water diverted from the West Slope will do less environmental damage. Accordingly, reuse needs to be an important component of any future water supply for Denver.*

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	(2) If at any time the amount of water in storage in Gross Reservoir is less than 25,000 acre-feet, the bypasses may be reduced at the rate of six percent, or by the nearest one-half second-foot, per each 1,000 acre-feet of storage water below 25,000 acre-feet. 4. In the event the Board plans to modify or build new diversion structures for which a Federal permit is not required, the Board should consult with the Colorado Division of Game, Fish and Parks, the Forest Service, and the Bureau of Sport, Fisheries and Wildlife, to consider the establishment of suitable fish habitat in the pools above these structures. 5. If at any time it becomes necessary for the Board to impose restrictions on the use of water in the area served by the Board due to insufficient water supply, the releases provided for in paragraphs 3a through 3e above may further be reduced by the Board in accordance with the severity of the restrictions. When the Board determines that said reductions are necessary, it shall consult with the Colorado Game, Fish and Parks Commission regarding said reductions. Although mutual agreement is not required, the Board shall act in good faith in consulting with the Colorado Game, Fish and Parks Commission and in imposing any reduction in releases. 6. In the event water rights are hereafter perfected or the water represented thereby is put to beneficial use by persons or entities other than the Board and the Colorado Division of Game, Fish and Parks resulting in the diversion of water bypassed in accordance with paragraphs 3a through 3d above, then said bypasses shall be reduced to the extent of such diversions.	**Response #745-14:** All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's System supply and reduces the amount of water diverted from other components of the system. The main sources of reusable water in Denver Water's Collection System are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek System (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Bi-City Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,500 AF/yr. Refer to FEIS Section 1.3.1 (Subheading Non-Potable Recycling Facility). ***Comment #745-13*** *(ID 3448)**:*** *As to other potential projects or water use that are alternatives to this project include: additional conservation; additional reuse; the Shoshone Agreement which even though mentioned in the cumulative impacts doesn't state that it provides a significant new yield to Denver that could be in lieu of this project; the additional water made available by the Big Lake Ditch transfer; the development of the Williams Fork gravity pumpback that has already been authorized by the United States Forest Service; as well as the potential additional development*

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		of ground water in the Denver Basin. **Response #745-13:** Conservation and Reuse Denver Water has committed to implement the programs necessary to realize 16,000 AF of conservation savings by 2032 and an additional 13,000 AF of conservation savings (total 29,000 AF) from 2032 to the build-out of the service area. As a demonstration of its commitment to conservation, Denver Water assumes that the 29,000 AF would be realized. In addition to this commitment, Denver Water has already subtracted the 29,000 AF from its demand projections. Water conservation is part of the solution for water supply projects. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Alternatives that were formulated that include reuse to varying degrees are Alternatives 6, 7, 8, 10, 11, and 14; therefore, almost 50% of the alternatives formulated include some component of reuse. These alternatives

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		were configured to meet a portion or all of the new firm yield requirement with reusable effluent. Alternatives 6a and 6b are specifically indirect potable reuse alternatives. Alternatives 7, 8, 10, 11, and 14 are variations of indirect potable reuse alternatives that involve treating reusable water, storing it, and delivering it back to the Moffat Collection System. The primary difference between these alternatives and 6a and 6b is that treated reusable water is not stored in Gross, Ralston or Leyden Gulch reservoirs and blended with other supplies prior to treatment at the Moffat WTP. Storage for reusable supplies in Alternatives 7, 8, 10, and 11 is provided at new gravel pits or deep aquifer storage. Alternatives 6, 7, and 14 were screened in the Cost Screen (Screen 1C) because they had high relative cost indices primarily due to the high cost of advanced water treatment and residual disposal. Alternative 11 was also screened because it was determined after further evaluation that sufficient unused reusable effluent supplies were not available to meet the entire firm yield requirement of 18,000 AF/yr. Therefore, even if Alternatives 6, 7, and 14 were not screened out for cost, they would be screened out because there are not sufficient unused reusable supplies available to meet the entire firm yield requirement of 18,000 AF/yr. Alternatives 8a and 10a, which include indirect potable reuse to meet 5,000 AF/yr of the firm yield requirement, were evaluated as EIS alternatives. The treatment costs were considerably lower for these alternatives because only a portion of the firm yield requirement would be met with indirect potable reuse, therefore, they passed the Cost Screen. The amount of indirect potable reuse included in Alternatives 8a and 10a was based on an evaluation of the amount of gravel pit storage potentially available and available unused reusable effluent. Approximately 7,600 AF/yr on average of unused reusable water would be available primarily in the winter months, when Denver Water’s customer demands, non-potable demands, and

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		exchange potential are relatively low. Alternatives 8a and 10a, which provide 5,000 AF/yr of the new firm yield requirement from reusable supplies were considered reasonable and achievable given the variability in timing and amount of unused reusable supplies available. As part of Denver Water's obligation to reuse water under the Blue River decree, Denver Water currently uses its reusable supplies for exchanges, augmentation, contract deliveries, and its non-potable system to the extent they can in combination with gravel pit storage. Any remaining unused reusable effluent, which is primarily available in the winter months, was considered for inclusion in reuse alternatives. Shoshone Call The Shoshone Agreement does not provide additional water to the Moffat Collection System since available storage capacity in Gross Reservoir would not be a limiting factor in dry years when the Shoshone Call reduction would be invoked and Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. It is highly unlikely that the Shoshone Agreement would affect stream flows in a manner that translate into additional shortages in Grand and Summit counties in any given or subsequent year for the following reasons: 1. The 2006 Shoshone Agreement does not increase the supply to the Moffat System because Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat System. Therefore, there would be no change in stream flows in the Fraser River Basin due to this agreement. 2. Any additional exchanges from Williams Fork Reservoir to Dillon Reservoir and Roberts Tunnel

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		would occur when the Shoshone Call is on and calling out all junior upstream water rights, including Roberts Tunnel and Dillon Reservoir. During this time any diversions at Dillon Reservoir would be fully replaced, resulting in no effect on stream flows below the point of replacement. 3. If the Shoshone Call reduction results in additional storage at reservoirs such as Dillon, Green Mountain, Williams Fork, and Wolford Mountain, the subsequent demand for water under those facilities' respective water rights is reduced. 4. Upstream junior in-basin water rights would benefit when the Shoshone Call is reduced because they could divert and/or Green Mountain and Wolford Mountain reservoirs gain water supplies, which are used for West Slope purposes. 5. Shortages in Summit County are typically the result of physical water shortages and minimum in-stream flows upstream of Dillon Reservoir, as opposed to Denver Water's operations. Big Lake Ditch Transfer Prior to 2013, in dry years, the 1998 agreement specifies the conditions under which Denver Water's interest in the Big Lake Ditch water rights may be used. These conditions were designed to minimize interference with Denver Water's ability to divert water at the existing Williams Fork Collection System or store water in Williams Fork Reservoir under critical supply circumstances. Apart from this, the ditch can divert water, even in dry years. The non-exercise of Denver Water's interest in the Big Lake Ditch rights during portions of dry years allows Denver Water to divert additional water to storage in Williams Fork Reservoir at times that the reservoir water rights are in priority. In these years, diversions through the Big Lake Ditch and the corresponding consumptive use of the water for irrigation is reduced, and irrigation return flows to Reeder Creek, a

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		tributary to the Colorado River, are also reduced. This affects the timing of flows in the Colorado River below the confluence with the Williams Fork River. Likewise, after 2013 diversions of Denver Water's interests in the Big Lake Ditch and the corresponding consumptive use of the water for irrigation and irrigation return flows to Reeder Creek would be eliminated. Depending on the type of year, this may increase or decrease the overall gain of water to the Williams Fork River and Colorado River below the confluence with the Williams Fork. This is reflected in the Full Use of the Existing System Scenario. Denver Water is currently in discussions with the owner of Bethel Hereford Ranch to extend the Big Lake Ditch contract on a temporary basis. As part of the CRCA, Denver Water will participate in a joint study of how to maintain historic agricultural uses of the Big Lake Ditch so as to maximize environmental benefit while preserving the yield Denver Water expects from retiring the water right. If a balance between the two needs (environmental and yield) can be found, Denver Water would implement the study. Until the study is completed, Denver Water has agreed to temporarily extend the Big Lake Ditch contract beyond 2013. However, for the purpose of the EIS, Big Lake Ditch operations were modeled assuming the existing 1998 agreement expires in November 2013 for Full Use of the Existing System, the No Action Alternative, and the action alternatives. Williams Fork Gravity Pumpback The USFS has not authorized an upper Williams Fork gravity pumpback. Denver Water has the water rights and a ROW, but a Federal permit would still be needed to construct the Project. The enlargement of Williams Fork Collection System was an alternative evaluated by the Corps (DEIS Appendix B, Table B-1). Denver Basin Groundwater The Denver Basin groundwater aquifers and non-tributary aquifers, which extend beyond the City and

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		County of Denver, were evaluated in the alternative screening. As potential water sources, these elements were eliminated because the groundwater, which is non-renewable and finite, would not provide a sustainable water supply. There is no guarantee of the long-term reliability of this supply in terms of quantity, timing and quality; therefore, it cannot satisfy the need for new firm yield. However, the use of groundwater aquifers as storage components were incorporated into several alternatives in Screen 1B (refer to Alternatives 10, 11, and 12 in Table 2-4). For each general alternative concept, Project alternatives were formulated by combining specific water sources with storage and conveyance components. Since the aquifer storage and recovery components would require a series of injection/recovery wells and associated pipelines to convey the water from the source to the wells and then to the Moffat service area, the logical and practicable alternative formulation process focused on wells located within the City and County of Denver to minimize cost and logistics. The EIS evaluated Alternative 10a, which consists of Gross Reservoir Expansion (additional 52,000 AF), use of reusable return flows and Denver Basin Aquifer Storage (20,000 AF). ***Comment #745-12*** *(ID 3447)**:*** *As with any water development of this magnitude, there are a number of additional legal issues. It should be noted that the status of the decrees involving the water rights are not without dispute.* **Response #745-12:** The Corps does not administer nor interpret Colorado Water Rights. The Corps defers to the State to resolve water law issues. The Corps' analysis for the EIS is based on diversions under Denver Water's existing decrees. When evaluating a permit application, the Corps' regulations provide: "The dispute over property ownership would not be a factor in the Corps public interest decision". 33 CFR 320.4(g). Whether water rights

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		or other property rights need to be obtained, utilized, expanded, or managed differently in order to fulfill the basic purpose of the proposed action does not preclude the Corps from permitting an otherwise practicable alternative. 40 CFR 230.10. The Corps may issue a Section 404 Permit even if other Federal, State or local authorizations have not been obtained before the applicant has applied for a permit. ***Comment #745-11*** *(ID 3446)**:*** *With respect to the Dillon Reservoir bypass flows, the statement in Paragraph on Page 4 - 81 indicating that there is no indication that Denver will reduce Dillon Reservoir bypasses is certainly not worth banking on. Are they or are they not? Surely at a minimum that mitigation requirement can be inserted in this permit.* **Response #745-11:** Denver Water's ability to reduce bypass flows below Dillon Reservoir is pursuant to its ROW agreement with the USFS (see DEIS Section 3.1.5.4), which is part of its current system and operations. Denver Water may reduce bypass flows whenever mandatory restrictions are imposed on the use of water in the area served by Denver Water due to insufficient water supply. Although Denver Water has the ability to reduce bypass flows below Dillon Reservoir, it has not exercised that right to date in Response to water use restrictions imposed on its customers. Denver Water has had to reduce the outflow from Dillon Reservoir below 50 cfs for temporary periods in the past for maintenance, repairs or construction on associated water facilities. The Moffat Project could potentially reduce Denver Water's need to reduce bypass flows below Dillon Reservoir because the Moffat Project would increase Denver Water's water supply and the reliability of its system in which case restrictions may be imposed less frequently. Since there is no indication that reductions in Dillon Reservoir bypass flows would increase under the Proposed Action, a Section 404 Permit condition requiring daily releases from Dillon

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		Reservoir to not drop below 50 cfs would not be required by the Corps since this is not an effect of the Proposed Action that requires mitigation. Additionally, as part of the CRCA, if Gross Dam is enlarged, Denver Water has agreed not to reduce the minimum outflow of the Dillon Reservoir unless in bans outdoor lawn watering. ***Comment #745-10*** *(ID 3445)**:*** *In summary, there are a lot of issues that need to be addressed in the Draft EIS. The complete lack of any mitigation, when there are clear water quality impacts, as well as impacts to the environment by dewatering of various streams in the Fraser and Blue Rivers is contrary to the spirit of NEPA, as well as permitting requirements of the Corps of Engineers.* **Response #745-10:** Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit.

References

Colorado Department of Public Health and Environment (CDPHE). 2008. Colorado Air Quality Control Commission Report to the Public 2008-2009. Accessed at: http://www.colorado.gov/cs/Satellite/CDPHE-AQCC/CBON/1251592949477.

United States Army Corps of Engineers (Corps). 2007. Alternatives Screening Report, Moffat Collection System Project. U.S. Army Corps of Engineers, Omaha District. August.

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Jurisdictions/Municipalities Part B

Comment-Response Report (Jurisdictions/Municipalities Part B)

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JURISDICTIONS/MUNICIPALITIES PART B		
Comment #767 Nicole L. Johnson, Attorney Petros & White, LLC, Representing the Summit County Board of County Commissioners 1999 Broadway, Suite 3200 Denver, CO 80202	From: Nicole Johnson [mailto:njohnson@petros-white.com] Sent: Wednesday, March 17, 2010 5:41 PM To: MOFFAT.EIS@usace.army.mil Cc: Gary Martinez; Thomas Davidson; Charles White Subject: Summit County Comment Letter, Moffat DEIS Part 1 of 5 Dear Mr. Franklin, Attached is a comment letter submitted on behalf of Summit County, regarding the Moffat Project DEIS. Additional e-mails will follow containing the appendices and referenced documents. I am also sending a copy of the letter, appendices, and referenced documents by U.S. Mail. Please feel free to contact me regarding these comments. Best Regards, Nicole Johnson Nicole L. Johnson Petros & White, LLC 1999 Broadway Suite 3200 Denver, CO 80202 303-825-1980 This transmission may contain information that is privileged, confidential and/or exempt from disclosure under law. If you are not the intended recipient, any disclosure, copying, distribution or use of the information in this message, including any reliance thereon by you or any other third person, is prohibited. If you have received this message in error, please immediately contact the sender and destroy this message in both electronic and any hard copy formats. Thank you. - Summit County, Comment Letter Moffat DEIS, 3-17-10.pdf - Moffat Comment, Appendix A.pdf - Moffat Comment, Appendix B pdf - Moffat Comment, Referenced Document 1.pdf - Moffat Comment, Referenced Document 2.pdf - Moffat Comment, Referenced Document 3.pdf - Moffat Comment, Referenced Document 4.pdf - Moffat Comment, Referenced Document 5.pdf	***Comment #767-5*** *(ID 5251)**:*** *This firm represents the Summit County Board of County Commissioners ("Summit County"), and submits the following comments on the Draft Environmental Impact Statement ("DEIS") for the Moffat Collection System Project ("Project") on behalf of Summit County. Summit County appreciates the opportunity to provide these comments to the United States Army Corps of Engineers ("Corps"). The County is currently involved in long-term negotiations with Denver Water on a wide range of issues, including Denver's compliance with the Blue River Decree and the impacts of the Moffat Project. The County is hopeful that these negotiations will be successful, however, no agreement is yet in place that would address the County's concerns about the Moffat Project. Accordingly, Summit County submits this comment letter to identify omissions and inaccuracies in the DEIS for the Moffat Project and to highlight the environmental impacts that would result from the Project. Should Summit County reach an agreement with Denver Water, Summit County shall inform the Corps of any change in its position regarding the Moffat Project.* **Response #767-5:** Prior to making decisions on the proposed Moffat Collection System Project (Moffat Project or Project), the U.S. Army Corps of Engineers (Corps) will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA). ***Comment #767-4*** *(ID 5250)**:*** *Based on available information, Summit County believes that the Moffat Project is not in the public interest and that Denver Water cannot satisfy the requirements necessary to obtain a § 404 permit pursuant to the Clean Water Act. If the Corps*

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	Attachments: PETROS & WHITE LLC ATTORNEYS AT LAW 1999 BROADWAY, SUITE 3200 DENVER, COLORADO 80202 TELEPHONE (303) 825-1980 FACSIMILE (303) 825-1983 March 17, 2010 ***Via e-mail and U.S. Mail*** Mr. Scott Franklin, Moffat EIS Project Mgr U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128 Moffat.eis@usace.army.mil Re: Comments regarding Moffat Project Collection System DEIS submitted by the Board of County Commissioners of Summit County Dear Mr. Franklin: This firm represents the Summit County Board of County Commissioners ("Summit County"), and submits the following comments on the Draft Environmental Impact Statement ("DEIS") for the Moffat Collection System Project ("Project") on behalf of Summit County. Summit County appreciates the opportunity to provide these comments to the United States Army Corps of Engineers ("Corps"). The County is currently involved in long-term negotiations with Denver Water on a wide range of issues, including Denver's compliance with the Blue River Decree and the impacts of the Moffat Project. The County is hopeful that these negotiations will be successful, however, no agreement is yet in place that would address the County's concerns about the Moffat Project. Accordingly, Summit County submits this comment letter to identify omissions and inaccuracies in the DEIS for the Moffat Project and to highlight the environmental impacts that would result from the Project. Should Summit County reach an agreement with Denver Water, Summit County shall inform the Corps of any change in its position regarding the Moffat Project. Based on available information, Summit County believes that the Moffat Project is not in the public interest and that Denver Water cannot satisfy the requirements necessary to obtain a § 404 permit pursuant to the Clean Water Act. If the Corps determines that Denver Water may be able to obtain a permit, a supplemental DEIS is necessary to correct the errors in the initial DEIS, to satisfy the procedural requirements mandated by NEPA and to accurately identify expected environmental impacts and appropriate mitigation terms. In addition to the following comments, Summit County has joined the Joint Rebuttal Report submitted on behalf of West Slope entities which provides additional technical comments challenging the DEIS's factual conclusions as to expected environmental impacts of the Project. **1. The Purpose and Need Statement** *The purpose of the Moffat Collection System Project is to develop 18,000 acre feet per year of new, annual firm yield to the Moffat Treatment Plant and raw water customers*	*determines that Denver Water may be able to obtain a permit, a supplemental DEIS is necessary to correct the errors in the initial DEIS, to satisfy the procedural requirements mandated by NEPA and to accurately identify expected environmental impacts and appropriate mitigation terms. In addition to the following comments, Summit County has joined the Joint Rebuttal Report submitted on behalf of West Slope entities which provides additional technical comments challenging the DEIS's factual conclusions as to expected environmental impacts of the Project.* **Response #767-4:** Per 40 Code of Federal Regulations (CFR) 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a Supplemental Draft document was not prepared for the Moffat Project. ***Comment #767-40*** *(ID 5249)**:*** *The Purpose and Need Statement The purpose of the Moffat Collection System Project is to develop 18,000 per year of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitment to its customers.[1] FOOTNOTE: [1] U.S. Army Corps of Engineers Omaha Division (USACE). 2009. Moffat Collection System Project Draft Environmental Impact Statement (DEIS), p. 2-1. The Moffat Project DEIS provides an insufficient analysis of the purpose and need for the Project. The Purpose and Need statement effectively narrows the alternatives considered in the DEIS to alternatives that include the transbasin diversion and storage of upward of 60,000 acre feet of water. Other viable alternatives such as non-structural alternatives that would not involve transbasin*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 *upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitment to its customers.*[1] The Moffat Project DEIS provides an insufficient analysis of the purpose and need for the Project. The Purpose and Need statement effectively narrows the alternatives considered in the DEIS to alternatives that include the transbasin diversion and storage of upward of 60,000 acre-feet of water. Other viable alternatives such as non-structural alternatives that would not involve transbasin diversions from the West Slope are excluded from further consideration. For example, the DEIS does not adequately consider conservation and reuse as viable alternatives to the Moffat Project. The degree of specificity built into the Purpose and Need statement violates NEPA's warning that agencies may not "defin[e] the objectives of their actions in terms so unreasonably narrow they can be accomplished by only one alternative (*i.e.*, the applicant's proposed project)."[2] "The stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms."[3] An appropriately defined purpose and need statement and comparison of all reasonable alternatives would show that Denver Water can meet its 2030 demands through conservation, reuse, and provision of additional sources of raw water for its Moffat Treatment Plant without increasing diversions from the West Slope. The Purpose and Need statement overstates Denver Water's raw water needs. The conclusion that Denver Water will face a shortfall of 18,000 acre-feet of water by 2016 does not take into account conservation that Denver Water has already achieved or plans to achieve in the near future, and includes 3,000 acre-feet of raw water deliveries to Arvada which Denver Water may never be obligated to supply. In spite of the deficiencies of the Purpose and Need statement, the Corps has accepted the statement in its entirety. To satisfy NEPA, the Moffat Project Purpose and Need statement must be based on the Corp's independent assessment of Denver Water's needs and consideration of a range of reasonable alternatives to meet those needs.[4] A federal agency may give deference to a private party applicant's stated purpose and need, but the agency is also required to consider the interests of the public as a whole and ensure that all reasonable alternatives are considered.[5] In addition to the procedural requirements imposed by NEPA for establishing a purpose and need statement, the Clean Water Act imposes a substantive requirement that the Corps' "decision whether to issue a permit . . . be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest."[6] In conducting a public interest review, the Corps balances the "benefits which reasonably may be expected to accrue from the proposal" against the "reasonably foreseeable detriments."[7] Pursuant to this substantive standard, the Moffat Project Purpose and Need statement is inappropriate as it does not accurately reflect the public interest by misstating the needs of Denver Water's customers. **1.1 Purpose and Need Statement** [1] U.S. Army Corps of Engineers Omaha Division (USACE). 2009. Moffat Collection System Project Draft Environmental Impact Statement (DEIS), p. 2-1. [2] *Colorado Environmental Coalition v. Dombeck*, 185 F.3d 1162, 1174-75 (10th Cir. 1999). [3] *City of Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997). [4] See 33 C.F.R. 325, App. B, §§ (9)(b)(5), (4) [5] *Citizens Committee to Save our Canyons v. United States Forest Service*, 297 F.3d 1012, 1030-31 (10th Cir. 2002). [6] 33 C.F.R. § 320.4(a)(1). [7] *Id.* 2	*diversions from the West Slope are excluded from further consideration. For example, the DEIS does not adequately consider conservation and reuse as viable alternatives to the Moffat Project. The degree of specificity built into the Purpose and Need statement violates NEPA's warning that agencies may not "defin[e] the objectives of their actions in terms so unreasonably narrow they can be accomplished by only one alternative (i.e., the applicant's proposed project)."[2] "The stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms."[3] An appropriately defined purpose and need statement and comparison of all reasonable alternatives would show that Denver Water can meet its 2030 demands through conservation, reuse, and provision of additional sources of raw water for its Moffat Treatment Plant without increasing diversions from the West Slope. FOOTNOTES: [2] Colorado Environmental Coalition v. Dombeck, 185 F.3d 1162, 1174-75 (10th Cir. 1999). [3] City of Carmel-by-the-Sea v. U.S. Dep't of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997). The Purpose and Need statement overstates Denver Water's raw water needs. The conclusion that Denver Water will face a shortfall of 18,000 acre-feet of water by 2016 does not take into account conservation that Denver Water has already achieved or plans to achieve in the near future, and includes 3,000 acre-feet of raw water deliveries to Arvada which Denver Water may never be obligated to supply. In spite of the deficiencies of the Purpose and Need statement, the Corps has accepted the statement in its entirety. To satisfy NEPA, the Moffat Project Purpose and Need statement must be based on the Corp's independent assessment of Denver Water's needs and consideration of a range of reasonable alternatives to meet those needs.[4] A federal agency may give deference to a private party applicant's stated purpose and need, but the agency is also required to consider the interests of the public as a whole and ensure that*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 The DEIS assumptions regarding Denver Water's future shortfalls in supply and the timing of those shortfalls upon which the Purpose and Need statement is based are inaccurate. First, conservation and natural replacement savings that have already been achieved by Denver Water are not applied in the DEIS to reduce estimated demand. Second, Denver Water's conservation commitments as of 2006 are not considered in formulating expected water supply shortfalls and the timing of those shortfalls. Denver Water has stated that it intends to conserve an additional 29,000 acre-feet by 2016 – 13,000 acre-feet more than the conservation estimate included in the DEIS.[8] Third, the need for 18,000 acre-feet of additional firm yield includes 3,000 acre-feet of demand by Arvada. Denver Water's contractual obligation to supply this water to Arvada is only triggered in the event that Denver Water develops additional firm yield for its North System. If Denver addresses its supply shortfall by means other than additional yield to the Moffat Treatment Plant, such as by conservation, this demand would not be triggered. The inclusion of the 3,000 acre-foot Arvada Contract in the Purpose and Need statement assumes that the solution to this need will be to create additional firm yield to the North System. The EIS also fails to consider Denver's ability to use groundwater as a source of emergency supply, thereby negating the need for the 30,000 acre-foot strategic water reserve which is built into Denver's estimated demand. **1.2 Unrestricted Demand** The demand assumptions included in the DEIS are based on the estimated unrestricted demand of Denver Water's customers. Unrestricted demand is a poor metric for future demand planning, because among other flaws, it is difficult to measure. For example, the DEIS states that Denver Water's PACSM model predicts four years in which the current Moffat Collection System would have run out of water, and several "other years when the Moffat Collection System would have been close to running out of water."[9] In fact, the Moffat System has never run out of water, even during the severe drought of 2002. At a minimum, the DEIS should include modeling of future demands with drought response measures in place. Denver Water customers expect to decrease their water demands during times of drought. To model "unrestricted demand" for future drought periods is unrealistic and contrary to the Board's current policies. In 2002, Denver Water employed its Drought Response Plan and took pre-determined actions to reduce water use. Denver Water's Drought Plan describes different stages of drought based on July 1st reservoir levels, and provides several recommended responses aimed at reducing water use for each stage of drought.[10] For instance, the goal in a Stage 3 drought, with reservoir storage at 40% or lower on July 1st, is to reduce water use by 50% through measures such as limiting outdoor lawn watering. Such restrictions can be expected to decrease demand by as much as 30% below average year demand.[11] In addition, the DEIS describes the "emergency measures" enacted during the 2002 drought, such as mandatory watering restrictions, as inefficient and expensive. Prior to accepting such a conclusion, an economic evaluation or "willingness to pay" study would be appropriate to determine how much Denver Water customers value their unrestricted demand before reaching a conclusion as to the purported expense or economic hardship of enacting drought response measures. Customers may be willing to sacrifice lawn watering during occasional seasons rather than paying for a large and expensive public works project with significant environmental impacts. [8] See Denver Water, Tap-Smart: The Conservation Master Plan, April 30, 2007. [9] USACE. 2009. DEIS Chapter 1 – Purpose and Need, p. 1-19. [10] Denver Water. 2004. Drought Response Plan. May. http://www.denverwater.org/docs/assets/DD1F807E-BCDF-1B42-D5B4FD4EB681A7B3/drought_response_plan1.pdf [11] *Id.* 3	*all reasonable alternatives are considered. [5] FOOTNOTES: [4] See 33 C.F.R. 325, App. B, §§ (9)(b)(5), (4). [5] Citizens Committee to Save our Canyons v. United States Forest Service, 297 F.3d 1012, 1030-31 (10th Cir. 2002). In addition to the procedural requirements imposed by NEPA for establishing a purpose and need statement, the Clean Water Act imposes a substantive requirement that the Corps' "decision whether to issue a permit . . . be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest."[6] In conducting a public interest review, the Corps balances the "benefits which reasonably may be expected to accrue from the proposal" against the "reasonably foreseeable detriments." [7] Pursuant to this substantive standard, the Moffat Project Purpose and Need statement is inappropriate as it does not accurately reflect the public interest by misstating the needs of Denver Water's customers. FOOTNOTES: [6] 33 C.F.R. § 320.4(a)(1). [7] Id.* **Response #767-40:** The Purpose and Need of the Moffat Project is to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Board of Water Commissioners' (Denver Water's) supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Corps disagrees that the Purpose and Need statement is too narrow. Rather, the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not

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	Moffat DEIS Comment Letter Summit County March 17, 2010 In addition, the DEIS takes other intergovernmental agreements for water service by Denver Water as firm demands for fixed amounts. In reality, most of these leases include provisions for reduction of the delivery obligations in times of shortage; commitments to comply with Denver Water's conservation programs; and means for Denver Water to terminate the agreements. Several of the leases specifically provide that Denver Water can reduce its delivery obligations by 5% upon imposition of voluntary restrictions on water use, 15% upon imposition of mandatory watering restrictions, and 50% upon prohibition of all irrigation. Such reductions provide Denver Water with an additional buffer in times of shortage. A 5% reduction in raw water contracts would reduce Denver Water's demands by 2,329 acre-feet, and a 5% reduction in all of Denver Water's contracts (including treated water and recycled water) would reduce Denver Water's demands by 3,359 acre-feet. A 15% reduction would decrease Denver Water's demand by about 10,000 acre-feet. This factor ought to have been considered throughout the DEIS, but in particular, ought to have been incorporated into the No Action Alternative. Rather than drawing on the strategic water reserve, Denver Water would be expected to impose drought restrictions which would allow Denver to meet its demand without increasing diversions from the West Slope. **1.3 Total Demands** The model used by Denver Water to estimate future demands was created almost a decade ago. It is based on water use statistics from the 1970's through 1990's and the demographic data on which it relies is now ten years old. Denver Water should recalculate future demands using an updated model that incorporates conservation funding increases and utilizes more recent Denver Regional Council of Governments ("DRCOG") demographic projections that take into account the current economic downturn. Denver Water's current demand model includes a statistically significant water conservation variable which accounts for monetary spending on conservation. In Denver Water's demand projections, conservation spending is held constant at $1,116,000 for all years between 2000 and 2050.[12] Denver Water currently spends more than $10,000,000 per year on conservation.[13] Denver Water is also likely to continue to increase spending on conservation through the near-term. The review of the demand models by Harvey Economics notes two potential problems with the demographic and economic data developed by the DRCOG and relied upon by the model. First, a comparison of new data acquired from the 2000 Census and corresponding revisions of the DRCOG's demographics to that used by Denver Water in its model "suggest higher future population levels, comparable household projections, and employment projections that are generally higher to the year 2020 and then less for the year 2030. Although no formal analysis of the impact of these changes upon Denver Water's demand projections has been made, it is likely that these new projections might have increased slightly water demand projections from 2000 to 2020 and **held stable or slightly reduced water demand projections by the year 2030.**"[14] (emphasis added). Second, the demographic and economic forecasts assume a Federal budget surplus.[15] It is not clear from the Harvey Economics Memo whether this now inaccurate assumption was corrected in Denver Water's 2004 draft projections. Likewise, the current economic downturn will have a far-reaching impact on future population growth in Colorado. Because [12] USACE. 2009. DEIS Appendix A2: Supplemental Evaluation of Denver Water Demand Projections, Exhibit 3. [13] Fisher, G., Manager of Demand Planning & Elliot, M., Manager of Water Conservation, Denver Water. Personal Communication. December 7, 2009. [14] Draft EIS, Appendix A, Harvey Economics Memorandum, August 12, 2004, "Review of Denver Water's IRP," p.8. [15] Draft EIS, Appendix A, Harvey Economics Memorandum, January 15, 2004, "Review of Denver Water's IRP," p.8. 4	"independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. Water conservation is part of the solution for water supply projects but an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 acre-feet [AF]) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) Table 1-2. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. Alternatives that were initially formulated that include reuse to varying degrees are Alternatives 6, 7, 8, 10, 11, and 14; therefore, almost 50 percent (%) of the alternatives formulated include some component of reuse. These alternatives were configured to meet a portion or the entire new firm yield requirement with reusable effluent. Alternatives 6a and 6b are specifically indirect potable reuse alternatives. Alternatives 7, 8, 10, 11, and 14 are variations of indirect potable reuse alternatives that involve treating reusable water, storing it, and delivering it back to the Moffat Collection System. The primary difference between these alternatives and 6a and 6b is that treated reusable water is not stored in Gross, Ralston, or Leyden Gulch

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	Moffat DEIS Comment Letter Summit County March 17, 2010 population projections are the primary driver for increased future water demands, it is critical to have accurate and up-to-date population projections for planning efforts. The success of such projections are also heavily dependent on accuracy of the initial rates of population growth because errors in the first few years are compounded over time. The demand model also shows a dramatic shift in annual increases in water demands from 2006 to 2016 (at 6,000 acre-feet per year, a 17% increase), as compared to the period from 2016 to 2030 (at 1,286 acre-feet per year, a 5% increase). This "frontloading" shifts a substantial portion of increases in demand, and therefore increases in diversion from the West Slope, to the 2016 "Full Use of Existing System" baseline against which the Project alternatives are compared. The environmental impacts with the Project scenarios appear smaller when compared to these inflated baselines. First, it seems unlikely that demand will increase by 17% from 2006 through 2016, given the economic downturn. Second, if there is a 23% increase in demand by 2030, it seems unlikely that 17% will occur in the first 10 years and only 5% will occur in the following 14 years. **1.4 Cooperative Actions** Denver Water's estimate of 440 acre-feet of water supply from near-term cooperative actions likely underestimates actual future yield from cooperative projects, given Denver Water's recent forward progress with the WISE Partnership. The Partnership allows Denver Water to utilize excess capacity in Aurora's Prairie Waters pipeline and water treatment plant to transport and treat reusable return flows in the South Platte. Denver Water estimates the Partnership could provide 20,000 – 30,000 acre-feet of water supply in dry years.[16] The Appendix to Denver Water's 2002 IRP also provides a lengthy list of possible cooperative projects totaling a yield of more than 11,000 acre-feet which are not specifically addressed in the DEIS. It is not clear why these alternatives are not considered either as possible cooperative efforts some of which would be expected to provide additional yield, or as alternatives to the Moffat Project. A chart summarizing these cooperative actions is attached as Appendix A. **1.5 Conservation Savings** The analysis of Denver Water's existing conservation savings in the DEIS omits much of the conservation savings already achieved. First, the DEIS appears to understate Denver Water's conservation between 1980 and 1997 by 2,500 acre-feet without explanation for the reduction. The DEIS assumes 27,500 acre-feet of conservation achieved by 1997, while the Appendix to the 2002 IRP states 29,000 acre-feet of conservation. Second, the DEIS does not address 10,000 acre-feet of conservation and natural replacement assumed by Denver Water to have been achieved between 2001 and 2005 in other Denver Water planning documents such as the Tap-Smart Plan.[17] "Staff assumed that 10,000 AF of permanent demand reductions was achieved during the drought through hardware and behavioral changes in water use." Part of this 10,000 acre-feet may have been incorporated within the natural replacement forecasts, but there is no analysis or discussion provided in the DEIS or supporting documents as to what portion can be attributed to natural replacement. The portion of the 10,000 acre-feet that is due to "behavioral changes" was omitted from consideration in the DEIS and would reduce Denver's forecasted demand. The DEIS does include a natural replacement estimate of 24,000 acre-feet per year by 2030, [16] Bennett, D. 2009. WISE Partnership presentation at AWRA Monthly Meeting. Denver Water Board Room, November 24. [17] Tap-Smart: The Conservation Master Plan. April 30, 2007. p.8 5	reservoirs and blended with other supplies prior to treatment at the Moffat Water Treatment Plant (WTP). Storage for reusable supplies in Alternatives 7, 8, 10, and 11 is provided at new gravel pits or deep aquifer storage. Alternatives 6, 7, and 14 were screened in the Cost Screen (Screen 1C) because they had high relative cost indices primarily due to the high cost of advanced water treatment and residual disposal. Alternative 11 was also screened because it was determined after further evaluation that sufficient unused reusable effluent supplies were not available to meet the entire firm yield requirement of 18,000 AF/yr. Therefore, even if Alternatives 6, 7, and 14 were not screened out for cost, they would be screened out because there are not sufficient unused reusable supplies available to meet the entire firm yield requirement of 18,000 AF/yr. Alternatives 8a and 10a, which include indirect potable reuse to meet 5,000 AF/yr of the firm yield requirement, were evaluated as Environmental Impact Statement (EIS) alternatives. The treatment costs were considerably lower for these alternatives because only a portion of the firm yield requirement would be met with indirect potable reuse; therefore, they passed the Cost Screen. The amount of indirect potable reuse included in Alternatives 8a and 10a was based on an evaluation of the amount of gravel pit storage potentially available and available unused reusable effluent. Approximately 7,600 AF/yr on average of unused reusable water would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. Alternatives 8a and 10a, which provide 5,000 AF/yr of the new firm yield requirement from reusable supplies were considered reasonable and achievable given the variability in timing and amount of unused reusable supplies available. Denver Water entered into an Intergovernmental

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	Moffat DEIS Comment Letter Summit County March 17, 2010 derived from Denver Water's estimate of 39,000 acre-feet of natural replacement savings per year by 2050. As Harvey Economics points out in their review, if Denver Water's calculations are correctly applied, the estimate of 39,000 acre-feet of savings by 2050 should result in an estimate of 27,000 acre-feet of savings by 2030. It is not clear how Denver Water arrived at the estimate of 24,000 acre-feet for inclusion in the DEIS. No explanation is provided in the DEIS or the Appendices. **1.6 Denver Water's Four "Needs"** Denver Water describes its need for the proposed Moffat Project as having four separate elements: reliability, flexibility, vulnerability, and firm-yield. The DEIS does not take into account that satisfaction of these four needs need not be accomplished by a single project. These four needs also require further investigation and explanation if they are to be used as the justification for the Project. The first three of Denver Water's needs require access to additional sources of raw water for the North System and the Moffat Treatment Plant. In contrast, the need for additional yield can be satisfied by cultivating new sources of water anywhere within Denver's system. A reduction in Denver's water demands could also eliminate the need for additional firm yield. By requiring that one alternative satisfy all four elements Denver Water unnecessarily narrows its scope of considered alternatives and fails to evaluate portfolios of projects that could satisfy all four of the needs. For example, the DEIS ought to consider an alternative in which the Moffat Treatment Plant is supplied with additional raw water from existing East Slope sources by construction of a pipeline or other infrastructure. Such a connection would solve the reliability, vulnerability, and flexibility problems articulated by Denver Water by utilizing available capacity in the Moffat Treatment Plant and providing an additional source of raw water supplies to the North System. Independently, a project to provide new firm yield to Denver Water could be developed anywhere within the Denver Water system. Denver Water's participation in the WISE Partnership is one example of a source of additional firm yield. Pursuant to the WISE Partnership, Denver Water can utilize excess capacity in the Aurora Prairie Waters Project to collect and treat unused reusable effluent and agricultural water. **1.6.1 Reliability** In support of its reliability need, Denver Water reports that PACSM modeling and 2002 operations indicate that existing water demands would exceed available supplies from the Moffat Collection System during a severe drought, putting the Moffat Water Treatment Plant at a "significant level" of risk of running out of water. A thorough assessment of the risk of water supply shortages and description of what a "significant level" of risk means to Denver Water customers; as well as an analysis of how and to what extent the proposed project would address this risk, is necessary to justify reliability as a need.[18] PACSM modeling indicates that treated water shortages would have occurred in water years similar to 1955, 1971, 1973, and 1974; however, these treated water shortages would also occur under any of the action alternatives.[19] The treated water shortages are due to conveyance capacity constraints as opposed to lack of supply. A description of the conveyance capacity upgrades required to eliminate the treated water shortage, including their timeline for completion, environmental impacts, and cost is necessary to claim that any given alternative satisfies the reliability need. As currently proposed, neither the proposed project nor any of the alternatives will reduce the risk of water shortage to Denver Water's treated water customers. [18] USACE. 2003. Scoping Summary – Moffat Collection System Project, p. 3-2. December. [19] USACE. 2009. DEIS Appendix K – Preliminary Section 404(b)(1) Guidelines Compliance, p. K-13. 6	Agreement with Arvada in 1999, which allowed Arvada the option to participate in a project that would increase yield to the Moffat Collection System. If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, it is a reasonable and conservative approach to include the 3,000 AF in the predicted 2032 demand in the analysis. Therefore, the need for the Project is 18,000 AF/yr instead of 15,000 AF/yr because Denver Water agreed to allow Arvada to purchase a percentage of increased firm yield that Denver Water is able to achieve in the Moffat Collection System, up to a maximum of 3,000 AF/yr. As stated in 33 CFR Part 320, which is, in part, the Federal regulations governing the Corps' review of Section 404 of the Clean Water Act, the decision whether to issue a Section 404 Permit is based on an evaluation of the probable impacts of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of important resources. Factors relevant to the proposed Project that were considered in the public interest include conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. As required by NEPA, the Corps has provided for an open dialogue that was initiated early in the EIS process to determine the scope of significant issues to be addressed in the document. To identify the issues and concerns related to the Moffat Project, the Corps

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	Moffat DEIS Comment Letter Summit County March 17, 2010 **1.6.2 Vulnerability** Denver Water reports that their overall water supply system is vulnerable to man-made and natural disasters because 90% of storage and 80% of available water supply is located in their South System. However, a simple analysis shows that storage and supply concerns are hardly changed with the addition of 18,000 AF of firm yield to the North System. Adding the proposed Moffat Expansion barely decreases Denver Water's reliance on the South System; decreasing South System dependence from approximately 80% of water supply to 77% (Table 1). **Table 1. Yield of Denver Water's Systems in AF (adapted from DEIS Table 1-3).** *Existing System* / *With Moffat Expansion* **Source** / **Supply** / **Percent** / **S. Supply** / **Supply** / **Percent** / **S. Supply** Roberts Tunnel / 93,000 / 27% / 81% / 93,000 / 26% / 77% South Platte / 141,000 / 41% / / 141,000 / 39% / Exchange/Reuse / 47,000 / 14% / / 47,000 / 13% / Moffat Tunnel / 64,000 / 19% / / 82,000 / 23% / **TOTAL** / **345,000** / / / **363,000** / / / An evaluation of the improvements to system vulnerability afforded by the proposed alternatives would show that the Moffat Project does not address this need in a meaningful way. Improvements to system-wide security, maintenance, forest health, and fire prevention may prove to be more economic, and reduce vulnerability more than any of the proposed project alternatives. **1.6.3 Flexibility** Denver Water suggests that its system is subject to outages caused by routine maintenance, pipe failures, treatment plant problems, and unpredictable occurrences that stress its ability to meet customer demands, and that to meet such occurrences the Denver Water system requires added flexibility. Unlike many water providers, however, Denver Water already has three large independently functioning water treatment plants, any one of which is capable of meeting the vast majority of Denver Water's needs. Even summer-time demands of the entire combined service area can be served by any two plants in times of drought as evidenced by operations during the 2002 drought. Some analysis or quantification of the benefits attributable to the additional flexibility provided by the proposed Moffat Project seems appropriate to support the claim that the proposed project meets the flexibility need. There is no clear indication that 18,000 acre-feet of additional supply would provide substantive benefits to system flexibility sufficient to justify the large economic and environmental costs of the Project. One proposal for such an analysis would be to pinpoint past customer service interruptions attributable to the planned and non-planned outages described in Appendix C of the Purpose and Need Report[20] and determine (1) whether any of those outages led to supply interruption at the customer level, and (2) whether the Moffat Project would have prevented such interruptions. **1.6.4 PACSM** Denver Water's near-term water resource strategy identifies a need for 18,000 acre-feet of new firm yield by 2030. Denver Water has not, however, substantiated the need for this volume of additional [20] Denver Board of Water Commissioners, Purpose and Need Statement for the Moffat Collection System Project (April 2004). 7	conducted public scoping in October 2003 and agency scoping in October 2005. Agency coordination regarding Project issues and resource impacts has been ongoing throughout the Project. The public formally had an opportunity to comment on the DEIS during the public review period that extended from October 30, 2009, with comments due on March 17, 2010. This comment period included a date extension to accommodate requests from the public and agencies for additional time to review the EIS. During the comment period, the Corps held four public hearings in Denver County, Boulder County, Grand County, and Summit County. ***Comment #767-3*** *(ID 5248)**:*** *Purpose and Need Statement The DEIS assumptions regarding Denver Water's future shortfalls in supply and the timing of those shortfalls upon which the Purpose and Need statement is based are inaccurate. First, conservation and natural replacement savings that have already been achieved by Denver Water are not applied in the DEIS to reduce estimated demand. Second, Denver Water's conservation commitments as of 2006 are not considered in formulating expected water supply shortfalls and the timing of those shortfalls. Denver Water has stated that it intends to conserve an additional 29,000 acre-feet by 2016 – 13,000 acre-feet more than the conservation estimate included in the DEIS.[8] Third, the need for 18,000 acre-feet of additional firm yield includes 3,000 acre-feet of demand by Arvada. Denver Water's contractual obligation to supply this water to Arvada is only triggered in the event that Denver Water develops additional firm yield for its North System. If Denver addresses its supply shortfall by means other than additional yield to the Moffat Treatment Plant, such as by conservation, this demand would not be triggered. The inclusion of the 3,000 acre-foot Arvada Contract in the Purpose and Need statement assumes that the solution to this need will be to create additional firm*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 firm yield within the time frame addressed by the Moffat Project DEIS. In addition to the failure to adequately consider conservation and cooperative projects as discussed, supra, Denver Water's yield model incorporates sources of error within the yield estimate. The Platte and Colorado Simulation Model ("PACSM") relies on data that has not been updated in almost twenty years to provide firm yield estimates. The backbone data set for the model only runs through 1991, and does not include some of the driest and wettest years for the Upper Colorado River Basin.[21] Adding precipitation data from 1992 through the present would (1) increase the scope of the data set and thereby increase accuracy regarding average expectations, and (2) include the five wettest and driest years on record for the Upper Colorado River Basin. The Memorandum by Bishop-Brogden Associates, Inc., attached as Appendix B, and the Joint Rebuttal Report provide additional technical criticisms of PACSM. **1.7 Summary of Purpose and Need** The Moffat Project Purpose and Need statement is overly narrow, includes unsubstantiated needs, and is based on outdated data. There is no demonstrated need for 18,000 acre-feet of additional yield in light of documented demand reduction through conservation efforts and Denver Water's overstatement of its contractual obligations. PACSM and Denver Water's demand model are also unreliable bases on which to base predictions of future firm yield and demand. The following figure illustrates the lack of a need for additional supply when conservation and elimination of the 3,000 acre-feet of contractual obligations to Arvada are considered. Figure 1 illustrates that when Denver Water's current conservation goals of 16,000 acre-feet by 2016 are taken into account, and the demand for the Arvada Contract is eliminated, there is at most 2,000 acre-feet of remaining demand. Given discrepancies in Denver Water's estimate of conservation savings that have already been achieved, supply may exceed demand through 2030. Figure 1 is intended to be compared with Table 1-1 that appears on page 1-10 of the DEIS. [21] Jeff Clark, Memo, "Hydrology Review of the Moffat Collection System Project DEIS," March 17, 2010, Appendix A. 8	*yield to the North System. The EIS also fails to consider Denver's ability to use groundwater as a source of emergency supply, thereby negating the need for the 30,000 acre-foot strategic water reserve which is built into Denver's estimated demand. FOOTNOTE: [8] See Denver Water, Tap-Smart: The Conservation Master Plan, April 30, 2007.* **Response #767-3:** As shown in Table 1-1 in DEIS Section 1.4.1, the 379,000 AF/yr. of demand in 2032 already reflects 27,500 AF/yr. of water savings from conservation measures since 1980 and an additional 24,000 AF/yr. of savings from natural replacement. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in DEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections, pgs. 9-12). Research from the American Water Works Association was incorporated into the calculations of natural replacement savings. The additional 16,000 AF/yr of conservation savings would come from other conservation measures, which have been evaluated by Denver Water and are deemed to represent an achievable level of new future conservation in addition to previous conservation levels. The values in FEIS Table 1-1 have been updated. Denver Water has explicitly incorporated the effects of conservation as a part of the Moffat Project EIS process. Chapter 1 (Purpose and Need) states that of the projected shortfall in supplies, conservation measures would account for 16,000 AF/yr. As shown in Table 1-1 of the FEIS, Denver Water assumes a total savings of 68,000 AF/yr from conservation and natural replacement when predicting its future demand (2050). Even with past and planned future conservation Denver Water expects demand to exceed supply in 2022 and the deficit would grow to 34,000 AF/yr by 2032 (see FEIS Figure 1-5). A summary of

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Figure 1. System Shortfall.

Category	2002 IRP	2030
	(AF/Year)	
Demand		
Unrestricted Demand	312,500	427,500
Less:		
Conservation Savings Since 1980	(27,500 to 29,000)	(27,500 to 29,000)
Future Natural Replacement Savings	N/A	(24,000 to 27,000)
Conservation and Natural Replacement (2001-2005)		(0 to 10,000)
Plus:		
1999 Arvada Contract	N/A	N/A Only applicable if Moffat Project constructed.
Total System Demand	**283,500 to 285,000**	**361,500 to 376,000**
Supply		
System Supply	315,000	315,000
Plus:		
Cooperative Action	N/A	440
System Refinements	N/A	13,000
Non-Potable Reuse	N/A	17,000
Total System Supply (Nearest 1,000)	315,000	345,000
Shortfall	N/A	16,500 to 31,000
Plans to Meet Shortfall		
Additional Conservation		29,000
New Water Supply		0 to 2,000

The time frame of Denver Water's predicted supply shortfall is also unsubstantiated. The DEIS relies on the assumption that demand will exceed available supply in 2016. This assumption is obviously inaccurate, however, as even the DEIS acknowledges that Denver Water expects to meet a significant portion of its demand through additional conservation efforts. Some of this conservation will be realized before 2016, so demand will not actually meet available supply until sometime after 2016. Unaccounted for in the DEIS are Denver Water's commitment to additional conservation efforts and participation in the WISE Partnership. These unaccounted for sources of demand reduction and additional supply will likely meet Denver's water needs well beyond 2030.

3. Failure to consider reasonable alternatives.

NEPA regulations require that an EIS "rigorously explore and objectively evaluate all reasonable alternatives."[22] The consideration of alternatives is "the heart of the environmental impact statement,"[23] because such review promotes NEPA's twin aims of "informed agency decision-making" and "public access to information."[24] "Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public

[22] 40 CFR § 1502.14[a].
[23] 40 C.F.R. § 1502.14
[24] *See New Mexico ex rel. Richardson v. Bureau of Land Management*, 563 F.3d 683, 703, 707 (10th Cir. 2009)

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conservation measures implemented by Denver Water is provided in Table 1-2 of the DEIS and FEIS.

If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, the Corps believes it is a reasonable and conservative approach to include the 3,000 AF/yr. in the predicted 2032 demand in the analysis.

A thorough and detailed alternative screening analysis of all reasonable alternatives was conducted for the proposed Moffat Project and summarized in Chapter 2 Proposed Action and Alternatives. The analysis included an evaluation of a variety of water sources and infrastructure components, including groundwater (Alternatives Screening Report, Corps August 2007). The Denver Basin groundwater aquifers and non-tributary aquifers, which extend beyond the City and County of Denver, were evaluated in the alternative screening process. As potential water sources, these elements were eliminated by Criterion LP2 (Logistics – Practicality Issues) because the groundwater, which is non-renewable and finite, would not provide a sustainable water supply. There is no guarantee of the long-term reliability of this supply in terms of quantity, timing and quality; therefore, it cannot satisfy the need for new firm yield. However, the use of groundwater aquifers as storage components were incorporated into several alternatives in Screen 1B (refer to Alternatives 10, 11, and 12 in DEIS Table 2-4). For each general alternative concept, Project alternatives were formulated by combining specific water sources with storage and conveyance components. Since the aquifer storage and recovery components would require a series of injection/recovery wells and associated pipelines to convey the water from the source to the wells and then to the Moffat service area,

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	Moffat DEIS Comment Letter Summit County March 17, 2010 involvement [is] greatly degraded."[25] The Moffat Project DEIS does not consider a sufficient range of alternatives because alternatives were eliminated based on the inadequate Purpose and Need statement and unsubstantiated cost estimates, and non-structural alternatives were not considered in a meaningful way if at all. In determining the range of reasonable alternatives to be considered, the U.S. Council on Environmental Quality has stated that "the emphasis is on what is reasonable, rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint using common sense, rather than simply desirable from the standpoint of the applicant."[26] Under NEPA, the comparison of a full spectrum of alternatives should provide "a clear basis for choice among options for the decision maker and the public."[27] Although the DEIS claims that "[t]he five alternatives to be carried forward for EIS analysis represent a reasonable cross-section of practical alternatives, which encompass a broad range of potential water supplies and storage sites,"[28] all of the alternatives rely on transmountain diversions and large storage facilities. Strategies other than new supply projects are, however, feasible alternatives to address Denver Water's demands. In addition to the procedural standards set by NEPA, the Clean Water Act requires the Corps to consider the least environmentally damaging practical alternative ("LEDPA") prior to issuing a § 404 permit.[29] Under the § 404 Guidelines, "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."[30] Because the screens applied to the alternatives initially considered in the Moffat DEIS were based on an overly narrow Purpose and Need statement, the least environmentally damaging alternatives were prematurely eliminated from further consideration. The DEIS also fails to adequately consider, at any stage in its review, non-structural alternatives such as conservation and reuse. The artificially narrow range of alternatives considered by the Corps does not consist of the thorough review mandated by NEPA and necessary to determine the LEDPA. **3.1 Proposed Alternatives** The DEIS begins its review with a pool of over 300 potential projects. Alternatives are then eliminated from further consideration through a series of "screens." These screens remove alternatives from further consideration that do not meet the Purpose and Need statement, that are assessed to be significantly higher in cost, or that are determined to have other flaws such as relatively greater environmental impacts. One of the significant flaws with the alternative screening process, however, is that the alternatives are not sufficiently described to allow the public to determine whether the alternatives were appropriately eliminated. For example, the indirect potable reuse alternatives are described as including a water treatment plant and storage capacity. It is unclear, however, why substantial storage capacity is necessary – whether the storage is intended to provide carryover capabilities across years or to store reusable effluent from winter months to summer months. One advantage of the use of reusable effluent to [25] *Id.* at 708. [26] U.S. Council on Environmental Quality: NEPA's 40 Most Asked Questions, #2a. Accessed January 8, 2010: http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm. [27] 40 CFR § 1502.14 [28] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives, p. 2-19. [29] See, Clean Water Act ("CWA") § 404(b)(1) Guidelines, 40 C.F.R. pt. 230 ("§ 404 Guidelines"). [30] 40 C.F.R. § 230.10(a). 10	the logical and practicable alternative formulation process focused on wells located within the City and County of Denver to minimize cost and logistics. Most of the deep aquifer alternatives (Alternatives 10c, 10d, 10e, and 12a) were eliminated due to cost, not location of the aquifer (refer to Section 2.1.3). To extend the infrastructure requirements to aquifers beyond the City and County of Denver would tend to increase the cost of the alternative. Therefore, the Corps believes that the use of aquifers within and outside the City and County of Denver were adequately evaluated in the screening process. ***Comment #767-2*** *(ID 5247)**:*** *Unrestricted Demand The demand assumptions included in the DEIS are based on the estimated unrestricted demand of Denver Water's customers. Unrestricted demand is a poor metric for future demand planning, because among other flaws, it is difficult to measure. For example, the DEIS states that Denver Water's PACSM model predicts four years in which the current Moffat Collection System would have run out of water, and several "other years when the Moffat Collection System would have been close to running out of water."[9] In fact, the Moffat System has never run out of water, even during the severe drought of 2002. At a minimum, the DEIS should include modeling of future demands with drought response measures in place. Denver Water customers expect to decrease their water demands during times of drought. To model "unrestricted demand" for future drought periods is unrealistic and contrary to the Board's current policies. FOOTNOTE: [9] USACE. 2009. DEIS Chapter 1 – Purpose and Need, p. 1-19. In 2002, Denver Water employed its Drought Response Plan and took pre-determined actions to reduce water use. Denver Water's Drought Plan describes different stages of drought based on July 1st reservoir levels, and provides several recommended responses aimed at reducing water use for each stage of drought. [10]*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 meet demand is that more reusable water is available in dry years, precisely when there is a need, such that carryover storage is not necessary. The inclusion of additional storage capacity drives up the relative cost of the reuse alternatives, though there is no explanation for the necessity for storage. The initial screening of alternatives based on the Purpose and Need statement resulted in inappropriate elimination of alternatives because of the flaws inherent in the statement. One of the initial eliminating criteria included in the DEIS is that an alternative must "produce a solution within the necessary near-term timeframe (by 2016)," which requirement is based on Denver Water's overstated water supply shortfall and flawed expectation that the shortfall will occur by 2016. In fact, Denver Water should not expect a shortfall in supply, if at all, until some point well after 2016. Fifteen alternatives were eliminated, however, on the basis that they could not produce a solution within the necessary time frame. Another eliminating criterion is that an alternative including a storage facility must be capable of storing at least 15,000 acre-feet in a surface impoundment. The rationale for this criterion is based in part on the unsubstantiated assumption that Denver Water has a need for additional firm yield of 18,000 acre-feet, which would require about 72,000 acre-feet of new storage. In addition, the justification for this screen is that too many storage vessels would prove "unmanageable. "A minimum storage volume for any one component is needed to reduce the number of possible storage elements to a manageable and practical combination."[31] There is no justification for the assumption that more than five storage facilities would necessarily prove unmanageable. In addition, because 18,000 acre-feet is an overstatement of Denver Water's actual needs smaller storage vessels could be utilized to meet Denver Water's shortage without exceeding five in number. Ninety-four alternatives were inappropriately eliminated on this basis. A similar criterion is that the alternative must provide water "in amounts sufficient to be practically developed," which is defined as providing at least 20% of the needed additional firm yield (or 3,600 acre-feet).[32] There is no justification as to why Denver Water's source of supply for the Moffat Project must be made up of options that supply greater than 3,600 acre-feet. This criterion eliminates possible alternatives to the Moffat Project which would consist of portfolios of smaller projects having less environmental impact. At the Screen 1C stage, the relative costs of remaining alternatives were compared. Several alternatives relying upon reuse were eliminated from further review based on their high relative cost. The DEIS does not provide sufficient information about how these cost estimates were developed, to allow the public to determine whether these alternatives were appropriately rejected. For example, there is no evidence that the economies of scale that might be obtained from constructing a treatment plant with excess capacity were considered. The additional capacity could be used to offset Denver Water's needs from other components of its system, or could be developed as part of a cooperative effort with other water supply entities similar to or in conjunction with the WISE Partnership. As an illustration, Alternative 8a states that the AWT Plant would be expected to operate for 2-3 years and then stand idle for 6-7 years. The DEIS does not provide a justification for this mode of operation given that some reusable effluent would be available in most years. Excess capacity could be used to treat available water to reduce Denver Water's West Slope diversions as required by the Blue River Decree. **3.2 No Action Alternative** The definition of the No Action Alternative included in the DEIS inflates expected environmental impacts and deflates, in comparison, the environmental impacts of the preferred alternative because it does not adequately capture the status quo baseline for comparison. "In requiring consideration of a no- [31] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives. [32] Moffat Project, Alternatives Screening Report, p. 28. 11	*For instance, the goal in a Stage 3 drought, with reservoir storage at 40% or lower on July 1st, is to reduce water use by 50% through measures such as limiting outdoor lawn watering. Such restrictions can be expected to decrease demand by as much as 30% below average year demand. [11] FOOTNOTES: [10] Denver Water. 2004. Drought Response Plan. May. http://www.denverwater.org/docs/assets/DD1F807E-BCDF- 1B42-D5B4FD4EB681A7B3/drought_response_plan1.pdf [11] Id. In addition, the DEIS describes the "emergency measures" enacted during the 2002 drought, such as mandatory watering restrictions, as inefficient and expensive. Prior to accepting such a conclusion, an economic evaluation or "willingness to pay" study would be appropriate to determine how much Denver Water customers value their unrestricted demand before reaching a conclusion as to the purported expense or economic hardship of enacting drought response measures. Customers may be willing to sacrifice lawn watering during occasional seasons rather than paying for a large and expensive public works project with significant environmental impacts. In addition, the DEIS takes other intergovernmental agreements for water service by Denver Water as firm demands for fixed amounts. In reality, most of these leases include provisions for reduction of the delivery obligations in times of shortage; commitments to comply with Denver Water's conservation programs; and means for Denver Water to terminate the agreements. Several of the leases specifically provide that Denver Water can reduce its delivery obligations by 5% upon imposition of voluntary restrictions on water use, 15% upon imposition of mandatory watering restrictions, and 50% upon prohibition of all irrigation. Such reductions provide Denver Water with an additional buffer in times of shortage. A 5% reduction in raw water contracts would reduce Denver Water's demands by 2,329 acre-feet, and a 5% reduction in all of Denver Water's contracts (including treated water*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 action alternative, the Council on Environmental Quality intended that agencies compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo."[33] "[T]he current level of activity is used as a benchmark."[34] By inappropriately defining the "benchmark" the DEIS provides a distorted comparison of impacts. The No Action Alternative does not capture the status quo because it does not include appropriate drought management measures that Denver Water has and plans to employ in drought circumstances; relies on flawed assumptions about the expected shortfall in demand and the timing of that shortfall; and relies on the strategic water reserve to satisfy demand contrary to Denver Water Board policies. Many of the flaws embedded within the framing of the No Action Alternative are flaws that have already been highlighted with respect to the other alternatives or the framing of the purpose and need for the project. These problems include the overstatement of Denver Water's demand by failing to consider past and future conservation and inclusion of the contractual obligation with Arvada even though that obligation would not be triggered by the No Action Alternative. Non-structural demand management solutions are inappropriately excluded from the No Action Alternative even though conservation and drought measures are and will continue to be essential elements of Denver Water's drought response policies. The No Action Alternative therefore does not realistically capture the actions that actually will be taken by Denver Water if a § 404 permit is not granted by the Corps. Although the No Action Alternative purports to include drought restrictions, the qualitative description of restrictions that might be enacted is insufficient and misleading. Denver Water has established water use reduction targets for various stages of drought, and has data which show reductions accomplished during the most recent 2002-2005 drought.[35] This data can, and should, be utilized in the DEIS to perform a more rigorous and quantitative evaluation of the impact drought response measures will likely have on drought demand. For example, in the 1977 drought, Denver Water achieved 33,000 acre-feet of savings by imposing mandatory watering restrictions. The 2002 IRP also provides a list of drought response measures that could be used rather than relying on the strategic water reserve such as reducing deliveries to Englewood under the 1995 agreement, drilling wells, pumping dead storage, and reducing deliveries to potable and nonpotable contract holders.[36] Instead, to satisfy predicted demand, the No Action Alternative relies on Denver Water's 30,000 acre-foot strategic reserve, which is intended to be an emergency source of supply. The 30,000 acre-foot strategic water reserve "is not included in the total system supply because it is not considered available for meeting the total system demand under normal operating conditions . . . ."[37] This policy statement contradicts the use of the strategic water reserve to meet demand under the No Action Alternative. If the strategic water reserve is not included as a source of supply for the considered alternatives, and is not considered available supply as a matter of Denver Water Board policy, it should not be included as a source of supply under the No Action Alternative. Doing so distorts the environmental impact baseline against with the Project alternatives are compared. **3.3 Conservation Alternative** One of the essential shortfalls of the DEIS is the omission of conservation as a means to reduce Denver Water's demands under the No Action Alternative or as an independent alternative to the Moffat Project. Prior to committing large financial resources to expanding the Moffat Collection System and [33] *Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1040 (10th Cir. 2001). [34] *San Juan Citizens' Alliance v. Salazar*, WL 824410, 17-18 (D.Colo. 2009). [35] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives, Table 2-23. [36] 2002 IRP, Drought Response Plan Appendix, p. 12. [37] Moffat Project DEIS, Purpose & Need, 1-14. 12	*and recycled water) would reduce Denver Water's demands by 3,359 acre-feet. A 15% reduction would decrease Denver Water's demand by about 10,000 acre-feet. This factor ought to have been considered throughout the DEIS, but in particular, ought to have been incorporated into the No Action Alternative. Rather than drawing on the strategic water reserve, Denver Water would be expected to impose drought restrictions which would allow Denver to meet its demand without increasing diversions from the West Slope.* **Response #767-2:** Modeling water supply and annual firm (dry year) yield on the basis of unrestricted demand purposefully excludes consideration of drought response plans for several reasons. Drought responses are primarily intended to respond to droughts of unknown duration and severity, unexpected emergencies and infrastructure failure. Unlike the Strategic Water Reserve, which is a supply side solution, drought response is a demand side device designed to quickly bring demand down in response to reduced supply. Drought response is temporary in nature and inherently uncertain, driven by immediate conditions. Modeling water supply and firm yield assumes a perfectly operating system over a long period of time. This is a widely accepted approach for evaluating a water utility's ability to meet needs under varying hydrologic conditions, while preserving management's prerogative to deploy drought response as circumstances require. The drought events during 2002 demonstrate that implementing mandatory drought restrictions does not result in no shortage of supply and no need for the Moffat Project. There is a current need for new firm yield even with mandatory restrictions imposed during a drought as discussed in Section 1.4.4.1 of the DEIS.

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This conservation is in addition to 10,000 acre-feet of reduction in demand that Denver Water calculates had already been achieved between 2001 and 2005.[39] There is a 13,000 acre-foot difference between the 2002 conservation goal of 16,000 acre-feet and the 2006 Tap-Smart Plan goal of 29,000 acre-feet. Because meeting demand through conservation would not trigger the 3,000 acre-foot obligation to Arvada, the remaining shortfall is at most 2,000 acre-feet according to Denver Water's estimates. This 2,000 acre-feet of shortfall does not justify the construction of the Moffat Project with its resultant environmental impacts. Rather, Denver Water could meet this remaining demand through reuse projects, additional conservation efforts, or acceleration of natural replacement. Even assuming that there is an 18,000 acre-foot shortfall, the DEIS fails to consider conservation as a means to eliminate that shortfall. Conservation is likely to be less expensive than the Moffat Project and would certainly produce fewer environmental impacts. Denver Water estimates in its TapSmart Plan that conservation will cost an average of $4,540 per acre-foot to the Denver Water Board and $12,600 per acre-foot total, when costs to the public are considered. The 2002 IRP also provides a list of conservation measures, the estimated reduction in demand that would result, and their costs, attached hereto as Appendix C. The list illustrates the numerous conservation measures available to Denver Water to reduce demand. In comparison, the Moffat Project is estimated to cost about $7,777 per acre-foot of firm yield. The Moffat Project cost estimates do not include the socioeconomic and environmental impacts that are expected to result. When those costs are factored in, the cost of the Moffat Project per acre-foot significantly exceeds the cost of additional conservation. The Corps has an obligation to take into account the total impacts of the project on the public, and therefore, to consider the entire cost of the Moffat Project including socioeconomic and environmental impacts. A related means of demand management to reduce water use is to raise rates. The advantage of raising rates to promote conservation as compared to imposing mandatory financial contributions towards construction of a large new water supply project, is that individuals can make their own determinations as to the costs and benefits of water use. The $140 million cost of the Moffat Project would ultimately be paid for by Denver Water users. An equivalent increase in rates would impose the same costs on the public, but would likely result in much more than 18,000 acre-feet of demand reduction per year. One report estimates that a 10% increase in water rates can be expected to result in a 6% decrease in water use over the long term.[40] Denver Water's 2008 annual report states that it received $205,941,000 in revenue from customers for water. A 10% increase would cost consumers $20,594,100 and would be expected to result in 22,740 acre-feet of savings (6% of expected system demand of 379,000 acre-feet). This approach would meet Denver Water's needs at about 15% of the cost of the Moffat Project to the public. Such an alternative is not, however, considered in the DEIS. [38] Resolution and Tap-Smart Plan. [39] See Moffat Project DEIS, Section 1.4.1.2. [40] Sheila M. Olmstead & Robert M. Stavins, "Comparing Price and Non-Price Approaches to Urban Water Conservation," September 2008, p.8. 13	The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. The Moffat System has never run out of water. However, as described in Section 1.4.4.1 of the DEIS, Denver Water undertook extreme measures to keep from running out of water in the early-2000s drought. In addition to 2002, there were four single dry years in the 45-year study period (1947-1991) when the Moffat Collection System would have run out of water. Additionally, there are other years when the Moffat Collection System would have been close to running out of water. Actual Moffat Collection System operations in 2002 demonstrate the lack of a reliable water supply. Denver Water would have run out of water if it had not implemented emergency measures to preserve and increase water in the Moffat Collection System, including mandatory restrictions, strict surcharges for water use, reducing minimum bypass flows on western slope streams, shutting off the Moffat WTP during portions of the drought, and constructing infrastructure and pumping treated water from the South System into inefficient ditches for delivery and re-treatment by raw water customers. These types of emergency operations are inefficient, expensive tactics that do not provide an adequate permanent solution for the lack of water supply available to the Moffat WTP. Further, one of three treatment plants was unavailable during peak demand season when a minimum of two plants were needed to meet demands. If an unplanned

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	Moffat DEIS Comment Letter Summit County March 17, 2010 **3.4 System Integration Alternative and Existing East Slope Supplies** System integration is another alternative to the Moffat Project that is omitted from the DEIS. The integration of Denver Water with other water supply systems would provide opportunities for agricultural-urban cooperative water sharing agreements (AUA's). Through integration, several water supply systems can be cooperatively used in a manner designed to increase or maximize total combined yields. In mature river basins like the South Platte, with a large number of urban and agricultural water users that are linked but not fully combined, system integration would enhance the opportunities for conjunctive use of surface and groundwater systems, coordinated approaches to effluent management and re-use, and Ag/Urban supply arrangements like rotational land fallowing and water leasing. Denver Water must also consider whether it has fully utilized its existing East Slope supplies. For example, Denver Water has an interest in the City Ditch which would be capable of delivering approximately 5,500 acre-feet per year and which appears to be unused by Denver Water.[41] Although some expense may be involved in cultivating existing water rights and putting them to use, these are sources of supply appropriate for consideration in the DEIS. **3.5 Reuse Alternatives** Indirect potable reuse is a cost effective water shortfall solution and is rapidly spreading in use across the nation, with dozens of projects already operating in California, Florida, Georgia, Virginia, Texas, New Mexico and Arizona. Availability of technology is no longer a barrier to indirect potable reuse.[42] Reuse has proven to provide a highly competitive and cost-effective means of augmenting water supplies. "Indeed, in some situations, indirect potable reuse may be the next best alternative to make beneficial use of the resource."[43] The City of Aurora's Prairie Water Project illustrates how a major water utility in Colorado has legally, technically, and environmentally developed an indirect potable reuse project. The Prairie Waters Project is currently ahead of schedule and $100 million under budget.[44] Yet the DEIS only superficially considers alternatives involving indirect potable reuse, rejecting reuse as a reasonable means to meet the majority of Denver Water's predicted supply shortfall. The elimination of meaningful reuse alternatives from the DEIS is justified by underestimates of available unused reusable effluent and misstatement of the costs of such alternatives. Denver Water is required by federal law to maximize the reuse of Colorado River return flows so as to alleviate the need for additional diversions from the West Slope. The Blue River Decree mandates that Denver "undertake[] to exercise due diligence, within legal limitations and subject to economic feasibility," to "utilize such [transmountain] return flow by exchange or otherwise . . . so as to reduce or minimize the demands of [Denver] upon Blue River water."[45] The Colorado Supreme Court has relied on the Blue River Decree in holding that Denver has the right to reuse and make successive use of foreign waters and that it should do so "to the maximum extent feasible."[46] Denver Water is required to adopt reuse measures before constructing West Slope supply projects as long as such alternatives are "economically feasible;" reuse need not be the least expensive alternative. As a "trustee responsible for [41] See, Memo, Bishop-Brogden Associates, Inc, March 17, 2010. [42] H.P. Jansen, et al., *Development of Indirect Potable Reuse in Impacted Areas of the United States*, 55 WATER SCIENCE & TECH. 357 (2007). [43] U.S. EPA Guidelines for Water Reuse, 2004 [44] Denver Post, Front Page, "Aurora Water Project Ahead of Schedule, Below Budget," March 15, 2010. [45] Decree in Consolidated Case Nos. 2782, 5016, and 5017, § 4(f) (D. Colo. Oct. 12, 1955) ("Blue River Decree"), ratified by Congress, Colorado River Storage Project Act of 1956, 43 U.S.C. § 620(j) and Senate Doc. No. 80, 75th Congress, 1st Session (1937). [46] *City & County of Denver v. Fulton Irrigating Ditch Co.*, 506 P.2d 144, 148 (Colo. 1972). 14	outage had occurred at one of the remaining operational plants, service to customers would have been interrupted. Furthermore, in order to ensure water supplies on the north end, Denver Water reduced bypass flows in the Fraser River Basin, reduced contract deliveries to raw and treated water customers, shut-down the Moffat Treatment Plant, and delivered treated water from the South System to an open-ditch for delivery to raw water contracts in the North System. Denver Water has an obligation to meet all existing perpetual agreements for water delivery. In many cases, Denver Water is the sole water provider for a particular entity. Temporary and interruptible agreements do exist, but they are the minority of water contracts. In those cases where the contract is interruptible, consideration is given to the unique circumstance for each contract. In some cases the contract is cancelled and the entity enters into a permanent agreement as they are within Denver Water's combined service area. In other cases the entity is forced to find another water supply. ***Comment #767-1*** *(ID 5246)**:*** *Total Demands The model used by Denver Water to estimate future demands was created almost a decade ago. It is based on water use statistics from the 1970's through 1990's and the demographic data on which it relies is now ten years old. Denver Water should recalculate future demands using an updated model that incorporates conservation funding increases and utilizes more recent Denver Regional Council of Governments ("DRCOG") demographic projections that take into account the current economic downturn. Denver Water's current demand model includes a statistically significant water conservation variable which accounts for monetary spending on conservation. In Denver Water's demand projections, conservation spending is held constant at $1,116,000*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 the protection of western slope interest,"[47] the United States is required to consider Denver's obligations pursuant to the Blue River Decree in making permitting decisions. As a result, the Corps has a heightened obligation to scrutinize Denver Water's current reuse practices and the potential for additional reuse. The DEIS omits any reference or discussion of the obligations imposed on Denver Water by the Blue River Decree. Denver Water claims that there is insufficient reusable effluent to meet its predicted supply shortfalls. This position is unsubstantiated and requires additional analysis. The flaws inherent to PACSM, which have already been discussed, bring into question the estimates of available reusable effluent included in the DEIS. Contrary to Denver Water's estimate of average available reusable effluent of 7,600 acre-feet, Denver Water reported an average of 19,300 acre-feet of unused reusable effluent from 1998 to 2008.[48] During the drought of 2002, over 47,000 acre-feet of unused reusable effluent was available. When multiplied by a factor of 1.5, to account for the fact that reusable effluent can be reused multiple times, there is nearly 29,000 acre-feet of unused reusable effluent available on average, and as much as 70,000 acre-feet available in drought years. It is not clear whether DEIS Table 2-9 showing Denver Water's calculation of its unused reusable return flows includes "second generation" reuse. If the 1.5 multiplier was not included within Denver Water's estimates of available reusable flows, even Denver Water's own estimate of 7,600 acre-feet of reusable effluent would produce about 11,400 acre-feet of usable supplies. The DEIS also relies on average unused return flows rather than dry year return flows. A greater supply of reusable return flows are available in dry years when Denver Water makes larger diversions from the West Slope, and precisely when Denver Water has the greatest need. It is misleading to state, as does the DEIS, that the "average" unused return flows are 7,600 acre-feet when PACSM predicts up to 37,500 acre-feet of unused reusable effluent in a dry year.[49] The alternatives in the DEIS that include nonpotable reuse explicitly state that the advanced water treatment plants would only be used during dry years, approximately three out of every nine or ten years, precisely when available unused reusable return flows would be at their maximum. The DEIS relies on a capital cost estimate of $5.25 per gallon per day of treatment capacity for an advanced wastewater treatment plant (for example, a plant with a capacity to treat 10,000,000 gallons per day would cost $52,500,000). Of that cost, $3.50 is attributed to treatment costs and $1.75 for concentrate disposal. The "Moffat Project Collection System Project EIS Denver Water Alternatives Screening Report" (URS 2007) recognizes that the unit cost of $3.50 for treatment is high compared to costs of constructed plants with similar treatment processes.[50] However, even according to this estimate, a plant with the capacity to treat 18,000 acre-feet of water per year would cost approximately $84 million. It is not clear, therefore, why such an option was rejected as more than five times more expensive than the preferred alternative,[51] which has an estimated total construction cost of $81.6 million. The cost breakdown shows that the treatment plants considered in the DEIS were designed to treat upwards of 49,000,000 gallons per day. If run 365 days per year, this capacity would be sufficient to treat almost 55,000 acre-feet of water per year. Given that Denver Water's own estimate of shortfall is only 18,000 acre-feet, there seems to be no basis for the considered alternatives to include a plant with such extensive excess capacity and corresponding additional costs. [47] *United States v. Northern Colorado Water Conservancy District*, 608 F.2d 422, 429 (10th Cir. 1979). [48] Denver Board of Water Commissioners, Colorado River Water Reports to U.S. Bureau of Reclamation, 1998 – 2008. [49] Moffat Project Collection System DEIS, Table 2-9, "Denver Water's Estimated Reusable Water." [50] "Moffat Project Collection System Project EIS Denver Water Alternatives Screening Report" (URS 2007), Appendix C. [51] The cost screen, Screen 1C, eliminated alternatives that had a cost ratio as compared to the least expensive alternative greater than 5. 15	*for all years between 2000 and 2050.[12] Denver Water currently spends more than $10,000,000 per year on conservation.[13] Denver Water is also likely to continue to increase spending on conservation through the near-term. FOOTNOTES: [12] USACE. 2009. DEIS Appendix A2: Supplemental Evaluation of Denver Water Demand Projections, Exhibit 3. [13] Fisher, G., Manager of Demand Planning & Elliot, M., Manager of Water Conservation, Denver Water. Personal Communication. December 7, 2009. The review of the demand models by Harvey Economics notes two potential problems with the demographic and economic data developed by the DRCOG and relied upon by the model. First, a comparison of new data acquired from the 2000 Census and corresponding revisions of the DRCOG's demographics to that used by Denver Water in its model "suggest higher future population levels, comparable household projections, and employment projections that are generally higher to the year 2020 and then less for the year 2030. Although no formal analysis of the impact of these changes upon Denver Water's demand projections has been made, it is likely that these new projections might have increased slightly water demand projections from 2000 to 2020 and held stable or slightly reduced water demand projections by the year 2030."[14] (emphasis added). Second, the demographic and economic forecasts assume a Federal budget surplus. [15] It is not clear from the Harvey Economics Memo whether this now inaccurate assumption was corrected in Denver Water's 2004 draft projections. Likewise, the current economic downturn will have a far-reaching impact on future population growth in Colorado. Because population projections are the primary driver for increased future water demands, it is critical to have accurate and up-to-date population projections for planning efforts. The success of such projections is also heavily dependent on accuracy of the initial rates of population growth because errors in the first few years are compounded over time. FOOTNOTES: [14]*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 The consideration of reuse alternatives also does not take into account the opportunity for cooperative action to fully utilize the available water treatment capacity. If the plant is to be used for approximately three years and allowed to sit idle for six, that unused capacity can be utilized by neighboring communities. The WISE Partnership is planned to operate in exactly this way, with South Metro utilizing the unused capacity of Aurora's water treatment plant in wet seasons and returning to their wells for drought supplies. If Denver Water is to reject reuse as an alternative to the Moffat Project based on cost, the public must be provided with more information about the bases for those cost estimates. Particularly when the costs to the public of environmental impacts that will result from the Moffat Project are considered, the cost of indirect potable reuse seems favorable in comparison. Indeed, communities throughout the country have concluded that indirect potable reuse is a preferable alternative to the development of new water supplies. Aurora's Prairie Water Project is just such an example. If Aurora, the second largest water provider in the Denver Metro area has determined that indirect potable reuse is an economically and environmentally sound water source, Denver Water cannot reject such an alternative without substantial justification. The Blue River Decree mandates that Denver Water adopt such measures if economically feasible. **4 Environmental Impacts and Mitigation.** The Moffat Project will have significant impacts on water, water quality, environmental resources, and local economies throughout the Colorado River Basin, including impacts to the Blue River, Dillon Reservoir, and Summit County. All of the 2030 water supply scenarios modeled in the DEIS show increased diversions through the Roberts Tunnel as compared to the 2016 "Full Use" scenario, resulting in corresponding reductions in water levels in Dillon Reservoir and flows in the Blue River. Under the preferred alternative, increased diversions through the Roberts Tunnel would be concentrated during the months of May through September which are the prime recreational seasons for Dillon Reservoir and the Blue River. Reservoir water levels and streamflows will be expected to decline during these periods in most years of the study period with construction of the Project. Reductions in flows in the Blue River will result in reductions in the wetted land adjacent to the River between Dillon and Green Mountain Reservoir, destroying riparian habitat. There will also be permanent adverse impacts to boating opportunities on the Blue River by decreasing the number of days with minimum and optimal flows for kayaking and rafting. Because of deficiencies in PACSM for purposes of modeling the impacts to flows on the West Slope, which deficiencies are outlined in the Joint Rebuttal Report and in the Memo by Bishop Brogden Associates, Inc., Appendix B, the Project may have adverse impacts significantly greater than those explicitly acknowledged in the DEIS. A more detailed analysis of the environmental impacts to Summit County is provided in the Joint Rebuttal Report to which Summit County is a signatory. The DEIS does not adequately address cumulative impacts of the Project, because it does not consider the total effect of diversions by Denver Water from the West Slope and the past, present, and future anticipated diversions by West Slope entities. An EIS must include "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[52] One example is the DEIS failure to quantitatively consider the impact of the Shoshone Agreement between Denver Water and Excel Energy which will reduce the call of the Shoshone Power Plant during dry years. Although the DEIS admits that such a reduction in the call is likely to occur once every six or seven years, this factor was not included in PACSM and therefore is not reflected in the environmental impact analyses in the DEIS. The reduction in the call would be expected to impact flows upstream of the Power [52] 40 C.F.R. § 1508.7 (1991). 16	*Draft EIS, Appendix A, Harvey Economics Memorandum, August 12, 2004, "Review of Denver Water's IRP," p.8. [15] Draft EIS, Appendix A, Harvey Economics Memorandum, January 15, 2004, "Review of Denver Water's IRP," p.8. The demand model also shows a dramatic shift in annual increases in water demands from 2006 to 2016 (at 6,000 acre-feet per year, a 17% increase), as compared to the period from 2016 to 2030 (at 1,286 acre-feet per year, a 5% increase). This "frontloading" shifts a substantial portion of increases in demand, and therefore increases in diversion from the West Slope, to the 2016 "Full Use of Existing System" baseline against which the Project alternatives are compared. The environmental impacts with the Project scenarios appear smaller when compared to these inflated baselines. First, it seems unlikely that demand will increase by 17% from 2006 through 2016, given the economic downturn. Second, if there is a 23% increase in demand by 2030, it seems unlikely that 17% will occur in the first 10 years and only 5% will occur in the following 14 years.* **Response #767-1:** Denver Water has evaluated and explicitly incorporated the effects of conservation as a part of the Project EIS. The water demand forecasting model explicitly recognizes conservation spending as providing downward pressure on water use per household during the 1973 to 2000 era. Chapter 1 (Purpose and Need) states that of the projected shortfall in supplies, conservation measures would account for 16,000 AF. An updated water demand projection was developed in 2010 by Denver Water and independently evaluated by the Corps. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data

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	Moffat DEIS Comment Letter Summit County March 17, 2010 Plant in years in which limited or no replacement water is available. The DEIS concludes that there will be minimal or no environmental impacts to Summit County, and therefore, does not propose mitigation terms. Because the DEIS relies on the conclusion that there will be no impacts, an appropriate condition for any permit issued for the Project is that any environmental impacts or change in the assumptions upon which the environmental impact analyses in the DEIS were based, must be mitigated. Such a permit term would require monitoring by Denver Water to identify, track, and address or mitigate the environmental impacts. If the Project does result in reductions in flows, modification of water treatment plant permits, impacts to water quality, temperature, fisheries, or other adverse effects, then Denver Water should be accountable for those effects as it would have been had those impacts been documented in the DEIS. For example, the DEIS assumes that Dillon Reservoir outflows shall remain at or above 50 c.f.s., and evaluates environmental impacts based on this assumption. Summit County believes that an appropriate permit term would require Denver Water to maintain a 50 c.f.s. outflow, or to provide other mitigation should flows on the Blue River fall below 50 c.f.s. Likewise, the DEIS assumes that levels in Dillon Reservoir will not drop below certain minimum volumes. Denver Water should be prohibited from dropping levels below these volumes, or be required to engage in mitigation if further releases or pumping from Dillon Reservoir is absolutely necessary. Such permit terms would only hold Denver Water to the assumptions pursuant to which the environmental impacts of the Project was evaluated and upon which the Corps relied when making the permitting decision. **5 Public Comment and Factual Conclusions.** As a general matter, a proper review of the DEIS was made difficult by the lack of or limited availability of information to the public, including but not limited to access to an executable model of PACSM, Denver Water's operating memoranda for PACSM, and supporting memoranda related to cost estimates for the Project alternatives. One of the essential elements of the NEPA process is to promote "informed decisionmaking and informed public comment."[53] To provide such informed comment, the public must have access to documents referenced in and supporting conclusions included in the DEIS, including documents referenced in the supporting memoranda. Denver Water claimed that operating criteria for PACSM, which model was used to support virtually all of the conclusions in the DEIS, were "proprietary materials." Based on this assertion, the Corps did not post the memoranda on its website with the other technical supporting documents. Without access to the operating criteria for the central hydrology model of the DEIS and an executable copy of the model, the public has no means to assess the adequacy of predictions regarding water availability and expected impacts on streamflow. "The safety valves in the use of such sophisticated methodology are the requirement of public exposure of the assumptions and data incorporated into the analysis and the acceptance and consideration of public comment. . . ."[54] As a general matter, "any supporting data or studies expressly relied upon in an EIS must be available and accessible to the public."[55] One of the gravest informational shortfalls in the DEIS impacts analysis is the use of averages throughout the document, masking the actual range of environmental impacts that are likely to result.[56] For example, rather than utilizing the driest year on record as a baseline scenario, the DEIS employs the "average dry year" to determine and compare dry year impacts. Such a comparison is not helpful in determining the most significant impacts that may result from the Project alternatives and does not allow appropriate public comment regarding mitigation terms. [53] *Utahns for Better Transp. v. United States Dep't of Transp.*, 305 F.3d 1152, 1163 (10th Cir. 2002). [54] *Natural Resources Defense Council, Inc. v. Herrington*, 768 F. 2d 1355, 1391 (D.C. Cir. 1985). [55] *California v. Block*, 690 F.2d 753 (9th Cir. 1982). [56] See Memo. Bishop-Brogden Associates, March 17, 2010. 17	from Denver Regional Council of Governments (DRCOG), Colorado Department of Local Affairs (DOLA) or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. Denver Water efforts have led to a 20% reduction in demand since 2001 and these savings were taken into consideration when predicting the future demand and water supply needs. Increases in conservation spending have occurred and would continue to occur in line with inflation. Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). ***Comment #767-54*** *(ID 5245)**:*** *Cooperative Actions Denver Water's estimate of 440 acre-feet of water supply from near-term cooperative actions likely underestimates actual future yield from cooperative projects, given Denver Water's recent forward progress with the WISE Partnership. The Partnership allows Denver Water to utilize excess capacity in Aurora's Prairie Waters pipeline and water treatment plant to transport and treat reusable return flows in the South Platte. Denver Water estimates the Partnership could provide 20,000 – 30,000 acre-feet of water supply in dry years.[16] FOOTNOTE: [16] Bennett, D. 2009. WISE Partnership presentation at AWRA Monthly Meeting. Denver Water Board Room, November 24. The Appendix to Denver Water's 2002 IRP also provides a lengthy list of possible cooperative projects totaling a yield of more than 11,000 acre-feet*

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	Moffat DEIS Comment Letter Summit County March 17, 2010 The DEIS also includes factual and scientific conclusions that do not satisfy the legal requirement that an agency's conclusions have "substantial basis in fact."[57] At a minimum, an agency must "consider[] the relevant factors and articulate[] a rational connection between the facts found and the choice made."[58] If the agency fails to "make a reasonably adequate compilation of relevant information and [the DEIS] sets forth statements that are materially false or inaccurate" the DEIS cannot provide the basis for an informed evaluation or a reasoned decision as required by NEPA.[59] The DEIS's assumption that Denver will face an 18,000 acre-foot shortfall in demand, without considering Denver Water's current conservation goals; that there will be only negligible environmental impacts to resources, when the impacts on those resources were not quantitatively analyzed; and that drought restrictions are expensive and undesirable without providing any basis for such a finding, are examples of conclusions without a "substantial basis in fact." **6 Conclusion** Based on the above comments, the attached Appendices, and the Joint Rebuttal, Summit County believes that the Moffat Project proposed by Denver Water is not in the public interest. Denver Water has not demonstrated a demand sufficient to justify the Project, and Denver Water has an obligation to engage in reuse if such an alternative is economically feasible. Given the technological developments in water treatment plants and the success of the Prairie Waters Project, Denver Water has not shown that reuse and conservation are not the least environmentally damaging practical alternative to address future shortfalls in water supply. However, if the Moffat Project is to proceed, a supplemental DEIS is necessary to correct the errors in the initial DEIS for satisfaction of NEPA's procedural requirements, to accurately identify expected environmental impacts, and to define appropriate mitigation terms to limit the impact of this project on Summit County and other West Slope entities. Sincerely, */s/ Nicole L. Johnson* Nicole L. Johnson Attorney for Summit County NLJ cc: Mr. Gary Martinez, Summit County Commissioner Mr. Thomas Davidson, Summit County Commissioner [57] *Izaak Walton League of America v. Marsh*, 655 F.2d 346, 371-72 (D.C.Cir.), *cert. denied*, 454 U.S. 1092, 102 S.Ct. 657, 70 L.Ed.2d 630 (1981). [58] *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 953-54 (9th Cir.2003). [59] *Sierra Club v. U.S. Army Corps of Engineers*, 701 F.2d 1011, 1030 (2d Cir. 1983). 18	*which are not specifically addressed in the DEIS. It is not clear why these alternatives are not considered either as possible cooperative efforts some of which would be expected to provide additional yield, or as alternatives to the Moffat Project. A chart summarizing these cooperative actions is attached as Appendix A. [SEE SOURCE FILE FOR APPENDIX A, TABLE V-1, SYSTEM REFINEMENT PROJECTS.]* **Response #767-54:** There is currently insufficient information available to incorporate the Water Infrastructure and Supply Efficiency (WISE) Project in Denver Water's Platte and Colorado Simulation Model (PACSM) because a variety of possible scenarios are being considered and evaluated by the Project proponents. A qualitative evaluation of this Project was added to FEIS Section 4.6.1, which describes the purpose of the Project, the participants, and generally how it would operate. While WISE would have participation from several water providers, WISE would use, in part the same water (unused Denver Water reusable effluent) as Moffat Project Alternatives 8a and 10a and various aquifers in the regions to store water similar to Alternative 10a. Furthermore, the WISE project does not deliver water to the north end of Denver Water's collection system. ***Comment #767-53*** *(ID 5244)**:*** *Conservation Savings The analysis of Denver Water's existing conservation savings in the DEIS omits much of the conservation savings already achieved. First, the DEIS appears to understate Denver Water's conservation between 1980 and 1997 by 2,500 acre-feet without explanation for the reduction. The DEIS assumes 27,500 acre-feet of conservation achieved by 1997, while the Appendix to the 2002 IRP states 29,000 acre-feet of conservation. Second, the DEIS does not address 10,000 acre-feet of conservation and natural replacement assumed by Denver Water to have been achieved between 2001 and 2005 in other*

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	Table V-1 **System Refinement Projects** | Project | Yield, AF | Cost, $ Million | Unit Cost, $/AF | | Strontia Fish Flow Recovery below Chatfield | 3,500 | 7.2 | 2,100 | | Strontia Fish Flow Recovery above Chatfield | 3,000 | 3.4 | 1,100 | | High Line Water Yield Project | 3,000 | 2 | 700 | | Gravel Pit Storage | 5,000 | 51 | 10,100 | | Platte Canyon Reservoir Outlet | 200 | <1 | 3,000 | | Marston Seepage Recovery | 400 | <1 | 800 | | Harriman Lake | 150 | 0 | 0 | | Lawn Irrigation Return Flows | 500 | 2.3 | 4,600 | | City Ditch Transfer | N/A* | <1 | N/A | | Farnell Lane Well Transfer | 150 | <1 | 1,300 | | Farmers & Gardeners Ditch Transfer | 300+ | <1 | 700 | | Antero Contracts | 414 | 3 | 7,000 | | Elk Creek | 60 | <1 | 2,800 | | Meadow Creek | 1,200 | 9 | 7,700 | | Park Conversions | 2,300 | 31 | 13,500 | | Willis Case Golf Course | 305 | 3.8 | 12,500 | | Central Platte Valley | 200 | 4.5 | 22,500 | | *Bear Creek Lake – Deleted* | - | - | - | | *Metro Area Ditches – Deleted* | - | - | - | | *Vidler Tunnel – Deleted* | - | - | - | | *Baseline Reservoir – Deleted* | - | - | - | * City Ditch Transfer yield of 1,000 AF is included in Recycling Project yield and is attributable to current City Ditch uses. Additional yield may be realized from this transfer. **South End Storage** This project category involves building additional storage on the South Platte and Blue rivers. This is the southern part of Denver's water collection system. Original IRP representative projects for this category included conjunctive use of ground and surface water, enlargement of the Antero, Eleven Mile and Dillon reservoirs, and new reservoir possibilities such as two sizes at the Estabrook site, Geneva Park Reservoir on Geneva Creek, and a small version of Two Forks Reservoir. No south end storage projects are currently being implemented, but study and consideration of the options continues because the near-term strategy specifies that this type of new supply may be needed toward or beyond the end of the near-term (2030). The following project descriptions encompass a smaller list of representative projects than was included in the 1997 version of this appendix. Denver Water is not rejecting the projects not shown, but rather is including the ones currently considered the most representative of these projects' function in the water system. 61	*Denver Water planning documents such as the Tap-Smart Plan.[17] "Staff assumed that 10,000 AF of permanent demand reductions was achieved during the drought through hardware and behavioral changes in water use." Part of this 10,000 acre-feet may have been incorporated within the natural replacement forecasts, but there is no analysis or discussion provided in the DEIS or supporting documents as to what portion can be attributed to natural replacement. The portion of the 10,000 acre-feet that is due to "behavioral changes" was omitted from consideration in the DEIS and would reduce Denver's forecasted demand. FOOTNOTE: [17] Tap-Smart: The Conservation Master Plan, April 30, 2007, p.8. The DEIS does include a natural replacement estimate of 24,000 acre-feet per year by 2030, derived from Denver Water's estimate of 39,000 acre-feet of natural replacement savings per year by 2050. As Harvey Economics points out in their review, if Denver Water's calculations are correctly applied, the estimate of 39,000 acre-feet of savings by 2050 should result in an estimate of 27,000 acre feet of savings by 2030. It is not clear how Denver Water arrived at the estimate of 24,000 acre-feet for inclusion in the DEIS. No explanation is provided in the DEIS or the Appendices.* **Response #767-53:** As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 AF of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver

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	MEMORANDUM BBA water consultants BISHOP-BROGDEN ASSOCIATES, INC. To: Jason Turner, Dave Taussig, Stan Cazier From: Jeff Clark and Kristina Wynne Subject: Hydrology Review of the Moffat Collection System Project DEIS Job: 0502.01 Date: March 17, 2010 The purpose of this memorandum is to provide a summary of our review and analysis of the hydrology information presented in Denver Water's ("DW") Moffat Collection System Project (MCSP) Draft Environmental Impact Statement (DEIS) dated October 2009, as well as a summary of key issues and concerns regarding the DEIS. Our research and analysis has been focused principally on West Slope hydrologic impacts, particularly on the Fraser and Blue Rivers. This memorandum is organized into two main sections; a discussion and analysis of specific technical concerns and issues with the DEIS, and a summary of overall key issues and concerns with the DEIS. **DEIS Technical Issues** The following section presents a summary of the technical issues and concerns that we have identified regarding the hydrology information contained in the DEIS analysis. 1. **The PACSM Model and Assumptions** The following summarizes the technical issues associated with the use of PACSM for the impacts analysis presented in the DEIS. It appears that all of the main flow-related resource effects have been evaluated based on the projected changes in hydrology using the PCASM model. Therefore, the accuracy and resolution of the PACSM model are critical to the assessment of all hydrologic impacts associated with the MCSP. 1.1 **Study Period Hydrology** The hydrologic period of record used in PACSM for modeling of all hydrologic changes and effected resources is based on data from 1947-1991 throughout and beyond Denver Water's (DW) collection and service system. While 45 years is a sufficiently long period of time, and includes a variety of hydrologic conditions, it does not capture some of the driest and wettest conditions on record since 1991 for the source area streams where diversions will occur under the proposed project. DW'S 2002 IRP Update states: www.bbawater.com 333 West Hampden Avenue, Suite 1050 Englewood, Colorado 80110 phone 303.806.8952 fax 303.806.8953	Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. ***Comment #767-52*** *(ID 5243)**:*** *Denver Water's Four "Needs" Denver Water describes its need for the proposed Moffat Project as having four separate elements: reliability, flexibility, vulnerability, and firm-yield. The DEIS does not take into account that satisfaction of these four needs need not be accomplished by a single project. These four needs also require further investigation and explanation if they are to be used as the justification for the Project. The first three of Denver Water's needs require access to additional sources of raw water for the North System and the Moffat Treatment Plant. In contrast, the need for additional yield can be satisfied by cultivating new sources of water anywhere within Denver's system. A reduction in Denver's water demands could also eliminate the need for additional firm yield. By requiring that one alternative satisfy all four elements Denver Water unnecessarily narrows its scope of considered alternatives and fails to evaluate portfolios of projects that could satisfy all four of the needs. For example, the DEIS ought to consider an alternative in which the Moffat Treatment Plant is supplied with additional raw water from existing East Slope sources by construction of a pipeline or other infrastructure. Such a connection would solve the reliability, vulnerability, and flexibility*

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 2 *"The selection of the study period used by PACSM is important because it determines the frequency and duration of extreme hydrologic events that are simulated. The study period can influence the conclusions drawn from an analysis." [2002 IRP, page 14]* Further, DW concluded in its August 28, 2003 'Study Period and Verification Period Selection' Operating Information memorandum: *"The study period selection is important for several reasons. It determines the number and type of extreme hydrologic events which will be simulated and can influence the conclusions drawn from a study… . The study period selected must be representative of the true basin hydrologic conditions, or erroneous conclusions could be drawn from the simulation results."* These are appropriate and accurate statements. However, the PACSM period of record used in the DEIS excludes some of the critical extreme high and low flow conditions observed, as well the "frequency and duration of extreme hydrologic events" in the Fraser, Blue and Colorado River basins. Therefore, the conclusions with regard to any of the effects from the proposed diversions on all of the noted water-related resources are unreliable. 1.1.1 **Five Driest and Wettest Years** The DEIS does not accurately portray the five driest and wettest years on record for the streams in the Colorado River Basin above the Kremmling gage. The dry year conditions may be worse than shown and the wet year depletions may also be worse than shown. The consequences of this are that the DEIS may understate the magnitude and duration of extreme hydrologic events, and that the resource effects analysis based on this information may be invalid. This conclusion is apparent from the two following analysis. • *Selection of Five Driest and Wettest Years* The DEIS presents all of its dry and wet year impacts using the average flow from the five driest and five wettest years of the study period based on annual volume at the Kremmling streamgage. The PACSM hydrology period is now nearly 20 years out of date and does not accurately portray the five driest and wettest years for the Upper Colorado River Basin. Table 1 displays the current five driest and five wettest years on record for various locations in the basin, and highlights the years that are not included in the PACSM study period. This table clearly shows that the PACSM hydrology period completely misses one or more of the driest and wettest years at nearly every location in the basin. Note that only locations which had streamflow data available from at least 1954 through 2002 were selected. This dramatically understates the level of depletions and the magnitude of the impacts to the source area streams. This hydrologic period may represent the critical period in terms of total water supply to DW's www.bbawater.com Bishop-Brogden Associates, Inc.	*problems articulated by Denver Water by utilizing available capacity in the Moffat Treatment Plant and providing an additional source of raw water supplies to the North System. Independently, a project to provide new firm yield to Denver Water could be developed anywhere within the Denver Water system. Denver Water's participation in the WISE Partnership is one example of a source of additional firm yield. Pursuant to the WISE Partnership, Denver Water can utilize excess capacity in the Aurora Prairie Waters Project to collect and treat unused reusable effluent and agricultural water.* **Response #767-52:** The Purpose and Need Statement is clearly one unique and developed purpose as follows: "… to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitment to its customers." Many underlying, interrelated needs can contribute to the discrete purpose of the Project. It is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the four issues would jeopardize Denver Water's ability to meet projected demand needs. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 3 system; however it is not the critical period in terms of hydrology and aquatic effects to the source area streams. • *Accuracy of the Five Driest and Wettest Years* The five driest and wettest years selected for analysis in the DEIS are based on the annual volume of 'virgin' streamflow predicted by PACSM at the Kremmling gage [page 4-13]. However, the DEIS does not provide any information regarding whether these years are reflective of the driest and wettest years that occur now under current conditions or will occur in the future following completion of the MCSP. The flow-dependent resources should be evaluated based on the driest and wettest conditions that they will actually experience, not during the years modeled of dry/wet native flows (which no longer exist). Although PACSM is a daily operations model, the DEIS does not present any daily, monthly or annual hydrology information; only averages. Based on the projected hydrology using PACSM output completed for the UPCO study (2003) under Scenario 3, which is very similar to the Preferred Alternative, a comparison was made to the DEIS modeled dry and wet years as shown on Table 2. Three of the five driest years at Kremmling modeled for UPCO following MCSP are not the same as the dry years shown by PACSMs 'virgin' conditions modeled in the DEIS. Similarly, two of the five wettest years at the Fraser River at Granby and at the Fraser River at Winter Park gages are not the same. In both case, the difference in total annual flow is approximately 10% to 15%. This level of change may result in additional stream segments being considered for detailed water quality analysis in the DEIS. While we understand that certain revisions may have been made to PACSM since the UPCO output, most of the revisions do not dramatically change the projected depletions contained in the UPCO output. Regardless, the comparison shows that the DEIS evaluation of dry years effects may not be representative of the actual conditions following completion of the project. Therefore, the DEIS may not accurately portray the dry-year impacts to the source area hydrology. 1.1.2 **2002 Hydrology** The DEIS is flawed with regards to representation of the dry year conditions and the effects of the MCSP during dry years. This is evidenced by a comparison of DEIS projected dry year information with actual conditions recorded in 2002. • **Streamflow** Much of our review and comparison of streamflows between the modeled flows portrayed in the DEIS and recorded flows show that 2002 is a notable year in terms of hydrology that does appear to be accurately represented in the DEIS. Tables 1 and 5 both show that the www.bbawater.com Bishop-Brogden Associates, Inc.	present-day water needs. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. A broad study area was selected to allow for a comprehensive inventory of possible sources and components for alternative screening. The Front Range area included: • Nearby Foothills – area east of the Continental Divide, downstream from the confluence of the North Fork South Platte and the South Platte rivers; upstream from the confluence of Clear Creek and the South Platte rivers; upstream from the confluence of Coal Creek and Boulder Creek; and upstream from the confluence of South Boulder Creek and Boulder Creek. • Nearby Plains and Other – area east of the Continental Divide and between the Front Range Foothills of the South Platte and upstream of the confluence of the Big Thompson and South Platte rivers; and other miscellaneous discrete components that were identified. • Upper South Platte – South Platte River Basin upstream of the confluence of the North Fork South Platte and the South Platte rivers. The EIS did evaluate a physical connection between the South System and North System in the long list alternatives. Various alternatives that use the South

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 4 streamflows recorded in 2002 are dramatically different than the 'dry' years represented in the DEIS. Tables 3.1 – 3.5 compare the DEIS Current Conditions dry year (an average of the dry years modeled under current conditions) and the Full Use Existing dry year conditions shown in DEIS at various locations to the actual recorded daily streamflow in 2002 (based upon CDSS streamflow records). These tables also show the actual historical gage records for the five 'dry' years modeled in the DEIS (1954, 1955, 1963, 1977, and 1981), at various locations in the Fraser River basin. The above referenced tables demonstrate that the DEIS modeled Current and Full Use flows in a dry year can vary considerably from both the actual recorded hydrology in the dry years and in 2002. These tables show that the DEIS representation of dry year conditions is inaccurate compared to the dry year conditions that have historically occurred. This misrepresentation of the dry year flows indicates that PACSM overstates the available yield during dry years or significantly understates the impacts to the source area streams in a dry year. Additional PACSM information obtained from the COE supports the statistical differences with and without hydrology data from 2002. The "Study Period and Verification Period Selection" memorandum described above summarized the procedure used to select the model study and verification periods. Table 6 of this document presents various 'natural' streamflow statistics (from PACSM) at four locations comparing study periods from 1991 dating back to 1940 or 1950 with the entire period of record. The conclusion of this memorandum is that there is no major statistical difference between the two study period options and that the one, three and five year duration droughts were for the exact same years at each location (which are included in the PACSM study period). The COE also provided a table entitled "Natural (Virgin) Flow at Six Locations" dated August 28, 2003 (same date as the Study Period Verification memo), which provides estimates of annual 'natural' streamflow volume from 1916-2002. The following table compares the same statistical information presented in Table 6 of the above memo for the Fraser River near Winter Park location for the following time periods; 1950-1991 (same as Table 6), 1950-2002 and 1992-2002. www.bbawater.com Bishop-Brogden Associates, Inc.	Platte Basin as a component of an alternative were considered, including Alternatives 4 and 5, which incorporated an interconnect between the South and North systems. In addition, portions of Conduit X were included in several alternatives (2, 3, 4, 5, 10c, 10d, 10e, and 11). These alternatives were screened out due to cost (Screen 1C) because of the high cost of delivery to the Moffat Collection System or in Screen 2 for environmental consequences (see Section 2.1.4 Screen 2). Refer also to the Alternatives Screening Report (Corps 2007). One-hundred thirty-five new East Slope reservoirs were screened as potential storage sites in the South Platte, Cache la Poudre, St. Vrain, Big Thompson, Clear Creek, and Boulder Creek drainage basins. These new storage sites included Leyden Gulch Reservoir and South Platte River gravel pits, which were analyzed in the EIS as part of Alternatives 1c, 8a, and 13a. Forty-seven existing East Slope storage sites were considered for enlargement or repairs including various unspecified sites within the same drainage basins as new reservoir sites. A majority of these sites were screened out for various reasons including being a legally and physically available source and conflicts with development plans of other entities; therefore, the Cost Screen was not applied to most of these components. The lower an interconnect is located in the South Platte River system the more vulnerable and potentially less reliable Denver Water's system is due to unplanned outages, including natural and manmade disasters. Denver Water's collection system is vulnerable to natural and manmade disasters and system failures because approximately 90% of available reservoir storage and 80% of available water supplies rely on the unimpeded operation of Denver's South System. Loss of operation of portions of the South System could require more water from the

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 5 **Statistical Comparison of Period of Records of PACSM Native Streamflow** **Fraser River Near Winter Park** (values in AF/Year) **Item** / **1950-1991** / **1950-2002** / **1992-2002** Average / 27,136 / 26,479 / 23,969 Std Dev / 6,340 / 6,409 / 6,331 Min 1 Yr / 13,863 / 11,104 / 11,104 Year / 1954 / 2002 / 2002 Min 3 Yr / 19,293 / 18,703 / 18,703 Years / 1953-1955 / 2000-2002 / 2000-2002 Min 5 Yr / 23,208 / 20,347 / 20,347 Years / 1952-1956 / 1998-2002 / 1998-2002 Data from table entitled "Natural (Virgin) Flow at Six Locations" dated August 28, 2003, provided by COE The above table shows that, using the streamflow data through 2002, the worst one, three and five year duration droughts are excluded from the PACSM study period. In other words, the exact procedure used to verify the study period looking backwards in time indicates that PACSM should include data following 1991. • **Reservoirs** Tables 4.1 – 4.3 compare the EOM contents modeled as 'dry' years in the DEIS for both Full Use Existing and Preferred Alternative to the actual EOM contents for several reservoirs utilized by the DW system. These tables show that the hydrology data, and the associated environmental effects, may be significantly inaccurate compared to actual operations of these reservoir during dry years ○ Antero Reservoir is shown in DEIS as remaining essentially full in dry years under both the Full Use Existing and Preferred Alternative projected conditions. However, Figure 4.1 shows that DW completely drained the reservoir in 2002 to minimize evaporation. ○ Cheesman Reservoir is one of DW's 'workhorse' reservoirs, is shown in Figure 4.2 to have approximately 10,000 to 30,000 AF more water in storage in the average modeled dry years (Full Use and Alt 1a) compared to actual contents in 2002. ○ Wolford Mountain Reservoir shown on Figure 4.3 would have as much as 30,000 AF more water in it during the five dry years under the Full Use and Alt 1a conditions than actually occurred in 2003. In www.bbawater.com Bishop-Brogden Associates, Inc.	Moffat Collection System to meet customer's water demands. If an interconnect were located downstream of several of Denver Water's South System facilities, including Roberts Tunnel, Dillon, Eleven Mile Canyon, Cheesman, Antero and Strontia Springs reservoirs, Denver Water's system would remain vulnerable. Loss of operation to these South Platte River facilities could affect the ability to deliver water to a downstream interconnect such as Conduit X. While an interconnect may help reduce the imbalance of the storage and water supply between the North and South systems, it does not address the vulnerability and reduced system reliability created by that imbalance. FEIS Section 4.5.3 has a full description of the WISE project. The unused reusable water identified by the WISE project was considered by the Moffat Project EIS and was incorporated into several Alternatives (7, 8, 10, 11, and 14) including two of the five EIS alternatives (8a and 10a). Using the unused excess capacity of Aurora's Prairie Water's Pipeline does not met the Purpose and Need of the Moffat Project as it does not deliver water to the north end of Denver Water's Water Collection System. Also, the WISE project makes use of unused capacity in Aurora's Prairie Waters Project. This unused capacity is available in the winter months only as Aurora needs the full capacity during the summer months to meet its demands. ***Comment #767-51*** *(ID 5242)**:*** *Reliability In support of its reliability need, Denver Water reports that PACSM modeling and 2002 operations indicate that existing water demands would exceed available supplies from the Moffat Collection System during a severe drought, putting the Moffat Water Treatment Plant at a "significant level" of risk of running out of water. A thorough assessment of the risk of water supply shortages and description of what a "significant level" of risk means to Denver Water*

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 6 other words, the DEIS overstates the storage in the dry year by one-half of the reservoir's capacity. The owner of Wolford Mountain Reservoir, the Colorado River Water Conservation District, indicates that 2002-2006 is the 'critical period' for this reservoir. • The discussion of "Need' under the P&N section states "Based on the IRP and recent events such as the 2002 drought…" [DEIS 1-1] Further, the discussion regarding 'The Reliability Need' states that "In a severe drought, even in a single, severe dry year, the Moffat Water Treatment Plant (WTP)…is at a significant level of risk of running out of water." [DEIS 1-2] IF these conditions are so critical to the P&N of the project, then the model hydrology used to evaluate the project should include the single, most severe dry year on record; 2002. **Summary** In our opinion the comparison shows that the DEIS may be significantly flawed in the representation of dry year condition and impacts to the streams in the Colorado River basin above the Kremmling gage. This highlights another example of why the model used to evaluate effects of the project needs to include the most extreme hydrologic conditions available. Even if the actual conditions experienced in 2002 were reflected in the DEIS dry year projections, the use of the average dry year does not allow for an understanding of the projected effects in comparison to known conditions. 1.2 **Portrayal of Current Conditions** The DEIS defines Current Conditions as: ***Current Conditions (2006)*** *– The Current Conditions (2006) scenario reflects existing conditions (year 2006), including demands, facilities, agreements, operations, and administration of the Colorado River and South Platte River basins. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. The purpose of the Current Conditions (2006) scenario is to model Denver Water's and other's existing water rights and facilities under the hydrologic conditions that existed throughout the study period (1947 through 1991). In addition, the operations of all existing reservoirs and diversion facilities are simulated for the entire study period, regardless of when they came on-line.* [DEIS page 4-11] This methodology creates a 'modeled' current conditions that is not thoroughly explained in the DEIS. It appears to present an idealized depiction of current hydrology that would maximize water demands and water diversions throughout the Denver Water (DW) PACSM study period. The entire DEIS then presents information and analyzes the effects in comparison to this modeled "Current Conditions." However, the modeled www.bbawater.com Bishop-Brogden Associates, Inc.	*customers; as well as an analysis of how and to what extent the proposed project would address this risk, is necessary to justify reliability as a need.[18] FOOTNOTE: [18] USACE. 2003. Scoping Summary – Moffat Collection System Project, p. 3-2. December. PACSM modeling indicates that treated water shortages would have occurred in water years similar to 1955, 1971, 1973, and 1974; however, these treated water shortages would also occur under any of the action alternatives.[19] The treated water shortages are due to conveyance capacity constraints as opposed to lack of supply. A description of the conveyance capacity upgrades required to eliminate the treated water shortage, including their timeline for completion, environmental impacts, and cost is necessary to claim that any given alternative satisfies the reliability need. As currently proposed, neither the proposed project nor any of the alternatives will reduce the risk of water shortage to Denver Water's treated water customers. FOOTNOTE: [19] USACE. 2009. DEIS Appendix K – Preliminary Section 404(b)(1) Guidelines Compliance, p. K-13.* **Response #767-51:** Denver Water's North and South raw water systems that provide water to the treatment plants are not connected. During periods of high demand, the raw water being provided to the Moffat WTP simply runs out because there is not a sufficient amount placed in storage to meet demand during dry years. Additionally, since 90% of storage and 80% of supply is provided by the South System, the raw water systems are currently severely imbalanced. This imbalance contributes to the North System's unreliability. Additionally, please refer to DEIS Section 1.4.4.1 Raw Water Availability to the Moffat WTP (System Reliability), that describes the potential for the Moffat Collection System to run out of water in a single dry year. The Corps believes the reliability issue in the North System is adequately described in the DEIS.

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 7 'current conditions' are frequently inaccurate compared to recent actual data. This can dramatically overstate the current conditions used in the modeling and severely understate the effects of the project on actual streamflow conditions. Below are several key examples that demonstrate this difference: **Diversions:** • **Moffat Diversions** Table H-7.1 presents the current level of Moffat Tunnel diversions as 63,799 af/yr. However, Denver Water's own records of Moffat Tunnel flows at the East Portal (attached) reflect an average tunnel outflow from (1984 – 2006) of 56,056 af/yr. Further, the diversion records maintained by DWR reflect an average tunnel delivery (SID 4655) of 57,293 af/yr for the same time period. It is difficult to assess the hydrologic and aquatic impacts due to the DEIS overstating the 'current' depletions from the Moffat project by roughly 7,800 af/yr (14%) on average. This dramatically understates the impacts from the additional diversions in comparison to Full Use Existing. • **Gumlick Tunnel** Similarly, the DEIS indicates on Table H-7.1 that the Current level of diversions from the Williams Fork basin through the Gumlick Tunnel are 8,853 af/yr, whereas the text on page 3-31 indicates that the current Gumlick Tunnel imports average approximately 5,100 af/yr. Based on monthly diversion records from DW (attached), the 1984-2006 diversions averaged approximately 4,930 af/yr. Therefore, the DEIS analysis overstates the actual current level of diversions from the Williams Fork basin by as much as 3,923 af/yr, or approximately 80%. **Streamflow:** • **Fraser Basin** Table 5, attached, presents several examples where the DEIS inaccurately represents the current streamflow in the Fraser River basin compared to actual gage records. This table shows that the DEIS representation of modeled Current streamflow for the months of May – July in dry years can be 30% to 82% higher than the actual monthly streamflow for a dry year (2002). Similarly, the DEIS representation of Current flows for the months of May – July in wet years can be up to 288% lower than the actual recorded streamflow for these months in a recent wet year (1984). This indicates that the DEIS model representation of hydrologic conditions is inaccurate and misleading. This may dramatically overstate the remaining streamflow in a dry year (understate the impacts from the project) and understate the magnitude of diversions during wet years. www.bbawater.com Bishop-Brogden Associates, Inc.	***Comment #767-50*** *(ID 5241)**:*** *Vulnerability Denver Water reports that their overall water supply system is vulnerable to man-made and natural disasters because 90% of storage and 80% of available water supply is located in their South System. However, a simple analysis shows that storage and supply concerns are hardly changed with the addition of 18,000 AF of firm yield to the North System. Adding the proposed Moffat Expansion barely decreases Denver Water's reliance on the South System; decreasing South System dependence from approximately 80% of water supply to 77% (Table 1). [SEE SOURCE FILE FOR TABLE 1, YIELD OF DENVER WATER'S SYSTEMS IN AF (ADAPTED FROM DEIS TABLE 1-3).] An evaluation of the improvements to system vulnerability afforded by the proposed alternatives would show that the Moffat Project does not address this need in a meaningful way. Improvements to system-wide security, maintenance, forest health, and fire prevention may prove to be more economic, and reduce vulnerability more than any of the proposed project alternatives.* **Response #767-50:** Denver Water does take action where it can to reduce system vulnerability. For example, Denver Water is involved with management of forests within its watersheds and thorough maintenance of its facilities. In 2010, Denver Water and the U.S. Forest Service (USFS) announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the state's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership would accelerate and expand the USFS ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects would take place around and upstream of

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 8 • **Colorado River** The annual streamflow in the Colorado River below Windy Gap USGS streamgage has averaged 238,264 af/yr from 1984-2008. However, the DEIS Appendix H-7.1 indicates a modeled 'current condition' with an average annual streamflow of 155,653 af/yr, a difference of 82,611 af/yr. The DEIS may understate the actual current conditions by approximately 35%. **Summary** The DEIS analysis does not represent actual current conditions. The examples above show that the DEIS in fact overstates the current level of diversions, which results in understating the actual incremental change that will occur between current conditions, Full Use Existing conditions, and the Preferred Alternative. The DEIS analysis should be modified to accurately reflect existing conditions so that the true impacts of the action alternatives can be assessed. 1.3 **Use of a Future Baseline** The DEIS analyzes the effects of the project by comparing the PACSM modeled "Full Use Existing System" (2016) and the PACSM modeled "Alternative 1a" (Preferred Alternative, 2030). This includes various assumptions regarding actual conditions at the start of the MCSP and dramatically minimizes the effects to the local resources compared to current conditions. There is limited information in the DEIS to compare the consequences of project alternatives to actual existing conditions. As noted above the DEIS fails to evaluate the large changes that occur between current conditions and the Full Use Existing System scenario. One key example is the Windy Gap Firming Project, which is assumed to be online by 2016 [DEIS 4-11 and App. H1-3]. By comparing the action alternatives to hydrologic conditions that include diversions from the WGFP, the DEIS understates the percentage change in stream flows below Windy Gap that would occur under each action alternative over actual existing conditions. For example, average annual flows in the Colorado River below Windy Gap under the Proposed Action are predicted to be 126,767 AF, a decline of 7,918 AF, or 6% compared to Full Use Existing System. DEIS Appendix H-7.1. However, compared to the modeled 'current' conditions of 155,653 AF, the change in flow is 28,886 AF/year, or 23%. This difference is more extreme in comparison to the actual current streamflow data described above. 1.4 **Water Demands** The level of water demands presented in the DEIS shows a dramatic shift in annual increases in water demands prior to 2016. This appears to indicate a 'front loading' of demands that results in lowered impacts from the action alternatives. The DEIS demand timing is summarized below: www.bbawater.com Bishop-Brogden Associates, Inc.	Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Even with these actions, there remains a vulnerability problem as long as 80% of the entire system's supply is dependent on near perfect operation of the South System. Denver Water also has a program in place to replace water distribution pipes, fresh water reservoirs, and other infrastructure related to the delivery of water. Large conduits are inspected on a yearly basis in some cases and preventive maintenance is done as needed. System-wide vulnerability is one of the underlying needs of the Moffat Project. When there are planned or unplanned shutdowns in Denver Water's system that require more water to be treated at Moffat WTP than would otherwise have occurred, the severe existing shortage of water available to the Moffat WTP is further exacerbated. In other words, even routine maintenance activities that require operating Moffat WTP more frequently deplete further the limited amount of supply available in the Moffat Collection System. Denver Water's North and South raw water systems that provide water to the treatment plants are not connected. During periods of high demand, the raw water being provided to the Moffat WTP simply runs out because there is not a sufficient amount placed in storage. On average, Denver Water spends $15 million per year on existing system maintenance and improvements. In addition, Denver Water's Ten-Year Capital Plan projects expenditures for additions, improvements, and replacements to water system facilities. Denver Water has been and is currently engaged in efforts to identify and protect against actual or potential

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	Current (2006): 285,000 af/yr
	Full Use (2016): 345,000 af/yr — 60,000 af/10 years = 6,000 af/yr (17% incr)
	Buildout (2030): 363,000 af/yr — 18,000 af/14 years = 1,286 af/yr (5% incr)
	
	While the DEIS indicates that there will be conservation saving both before and after 2016, it is the remaining demands shown above that are modeled to reflect the effects on the resource. It is unrealistic that Denver Water's demands, and the expected diversions, will suddenly drop following 2016. Further, there is limited information in the DEIS to verify the relatively high level of demand projected between 2006 and 2016.
	
	The demands used to develop the new firm yield requirement should be re-evaluated to include the following considerations:
	• Levels of water conservation in dry times prior to any bypass reductions
	• Per capita uses since 2002 may be much lower than used in DEIS. In the years following the 2002, DW system has experienced a level of 'demand hardening' that will be reflective of future conditions, not the per-capita demands experienced prior to the 2002 drought which is used in the DEIS.
	• 3,000 AF to Arvada – This recent contractual obligation, which increases DW's reported need for additional water, is IN COMPENSATION for providing one of the reservoir sites that is an alternative to this project. This overstates DW's needs, as the 3kaf to Arvada is contingent on DW realizing yield from MCSP. It is inappropriate to leverage up demands for a project in exchange for property that increases the likelihood of one of the project alternatives.
	
	1.5 **Model Study Area**
	The modeling study area extends only to Kremmling because the change in annual flow at this location < 10%. However, this threshold is based on changes in total annual volume. The changes in flow at this location are greater than 10% in the months that diversions are occurring:
	• Colorado River near Kremmling (based upon Tables H-3.32 and H-1.36) percent change from Current to Alternative 1a:
	  ○ Average years
	  ▪ May: -12%
	  ▪ June: -18%
	  ▪ July: -13%
	  ▪ August: -11%
	  ○ Dry years
	  ▪ All months of diversion less than 10%
	  ○ Wet years
	  ▪ May: -16%
	
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		threats to all of its critical infrastructure and key resources and has implemented security program initiatives to include vulnerability assessments of its facilities. Support for Denver Water's security program includes an appropriate and significant level of recurring funding, and implementation of recommended physical security improvements. Additionally, Denver Water is in direct contact with and regularly participates with local, State, and Federal agencies in training and exercises to prepare for a response to any adverse actions that may occur.
		
		Comment #767-49 *(ID 5240)**:***
		Flexibility Denver Water suggests that its system is subject to outages caused by routine maintenance, pipe failures, treatment plant problems, and unpredictable occurrences that stress its ability to meet customer demands, and that to meet such occurrences the Denver Water system requires added flexibility. Unlike many water providers, however, Denver Water already has three large independently functioning water treatment plants, any one of which is capable of meeting the vast majority of Denver Water's needs. Even summer-time demands of the entire combined service area can be served by any two plants in times of drought as evidenced by operations during the 2002 drought. Some analysis or quantification of the benefits attributable to the additional flexibility provided by the proposed Moffat Project seems appropriate to support the claim that the proposed project meets the flexibility need. There is no clear indication that 18,000 acre-feet of additional supply would provide substantive benefits to system flexibility sufficient to justify the large economic and environmental costs of the Project. One proposal for such an analysis would be to pinpoint past customer service interruptions attributable to the planned and non-planned outages described in Appendix C of the Purpose and Need Report[20] and determine (1) whether any of those outages led to supply interruption

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 10 ▪ All other months of diversion less than 10% This indicates that the DEIS may understate the area of impact from the MCSP. The DEIS should be revised to assess the changes in streamflow for the months of diversions, not based on total annual volume. 1.6 **Shoshone Curtailment** DW maintains an agreement with Xcel Energy that allows for the relaxation of the Shoshone hydropower water rights call under certain conditions [DEIS 5-20] The Shoshone call causes significant changes in the water operations in the upper Colorado River basin by causing the curtailment of water diversions, changes in storage operations, increases in exchanges, etc. The DEIS reports that DW conducted an analysis that shows that the relaxation "*may have been invoked in about 8 to 10 years during the period 1947 through 2002, or roughly 1 out of every 6 or 7 years.*" [DEIS5-24]. The DEIS contains a DW estimate of the 'Historic Gains' from the call relaxation that occurred in 2003 and could have occurred in 2004 on Table 5-5. The 'Gains' summarized in this table average over 24,000 af/yr. This is a large volume of water that will modify the existing and projected hydrology in the basin that is not included in the model. While not described in detail the DEIS, the relaxation is likely to happen during dry years which may occur over several back-to-back years, which may change the flow-related resource effects described in the DEIS. Further, the DEIS notes that one of the effects of the Shoshone relaxation is to increase both the water stored in Williams Fork Reservoir and the water available for diversion at Roberts Tunnel. This will cause an increase in the amount reusable effluent available to DW, which is similarly not included in the model nor in the quantities of unused reusable supplies summarized in Table 2-9. While it is recognized that there are difficulties in modeling the relaxation criteria, the magnitude of the potential changes needs to be included in the modeling of the hydrologic effects. DW's agreement with Xcel expires in 2032, unless extended, which is beyond the model forecasting period of 2030. 1.7 **PACSM Detail** The DEIS does not contain sufficient detail regarding the projected effects for the stakeholders in the source area basins to understand and evaluate the anticipated effects from the proposed project. The general public and the potentially impacted parties do not have access to PACSM, the underlying assumptions and operating criteria in the model are not provided in the DEIS. The PACSM model should be made available for review and analysis to both the COE and the potentially affected stakeholders, or detailed output from the model runs needs to be provided to the stakeholders. www.bbawater.com Bishop-Brogden Associates, Inc.	*at the customer level, and (2) whether the Moffat Project would have prevented such interruptions. FOOTNOTE: [20] Denver Board of Water Commissioners, Purpose and Need Statement for the Moffat Collection System Project (April 2004).* **Response #767-49:** The need for flexibility is supported by a review of the conditions during the 2002 drought. For example, Denver Water would have been susceptible to supply interruptions in 2002 when the Moffat Collection System was out of water and Gross Reservoir was empty. If the Foothills WTP had gone down due to an unplanned outage there would have been significant supply interruptions to customers. The Foothills WTP has experienced major outages of the distribution system in the past, resulting in WTP load shifting to the Moffat WTP. Denver Water has evaluated the ability of each of the treatment plants (Moffat, Marston, and Foothills) to meet future demand conditions when planned or unplanned outages occur. While some outages (i.e., planned outages, treatment plant outages, or distribution system outages) may seem minor when considered alone, combinations of outages frequently occur. Also, if an outage causes only one additional acre-foot of water to be treated at the Moffat WTP, that outage is problematic because of the inadequate amount of water available at the Moffat WTP. The analysis suggests that to the degree that water supply is limited and if outages occur in a dry year, Denver Water is vulnerable. Multiple water utilities have interconnections with Denver Water in the event that their treated water system fails. These interconnects allow the other utilities the flexibility they need when performing maintenance on treatment plants without an interruption in water service. However, since these interconnections are with smaller utilities and in limited

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 11 **2. Use of Averages vs Detail** The DEIS displays nearly all hydrology information in terms of average monthly streamflows, diversions, and reservoir outflows in Appendixes H-3 and H-6. This level of output may be sufficient to demonstrate the general level of proposed diversions; however it is completely insufficient to understand the effects of the MCSP on the source area. The presentation of hydrologic effects using monthly averages obscures and minimizes the actual variations and extremes that the Moffat Project will cause. For example, the actual recorded Moffat Project diversions from DWR show that the minimum and maximum diversions since 1984 are 24,666 af/yr and 92,226 af/yr, respectively, showing a dry-to-wet year range of over 67,500 af/yr (73% of the maximum diversion). Whereas Table H-7.2 and H-7.3 show that the *average* diversions in dry and wet years are currently 52,739 af/yr and 57,343 af/yr, respectively, showing a dry-to-wet year range of only 4,600 af/yr (8% of the maximum diversion shown). Table 5 also shows the differences during the principal diversion months (May – July) between the modeled average flow in dry or wet years compared to actual streamflow during dry and wet years.). Tables 6.1 through 6.4 display the effects of using the five-year average for wet and dry years on the Fraser River near Winter Park rather than displaying the full range of streamflows in a dry or wet year. For instance, modeled current conditions (using UPCO) in May of the five wettest years range from monthly average values of 8 cfs to 109 cfs (as seen in Table 6.1). However, the DEIS only presents the average of the five wettest years is equal to 33 cfs (as seen in Table 6.1). Tables 6.1 through 6.4 demonstrate how misleading and inaccurate the use of averages can be compared to actual data projections. The COE, as well as the resource managers for the basin, are going to need to understand, at a minimum, the following types of information: • Daily, monthly and annual changes in streamflow • Frequency and duration of changes to the peak flushing flows • Frequency and duration of minimum or dry year flows • Increase in the number of days per month that streamflows will only be maintained at the specified USFS bypass requirements • Extent of daily, monthly and annual changes in reservoir levels **3. Changes in Frequency and Duration of Dry Year Conditions** The DEIS recognizes that Moffat Project diversions would occur in average and wet years and that "typically additional diversions would be greatest in wet years following dry year sequences" [DEIS at 4-5]. Thus, there will be more frequent years where stream conditions during diversions will look like dry years and more back-to-back dry year conditions. Further, the extent to which the proposed project will result in converting historical wet years into average years, or average years into dry years, are not disclosed www.bbawater.com Bishop-Brogden Associates, Inc.	locations, it is impossible for them to be used to meet Denver Water's needs in the event Denver Water has an emergency at a WTP. Presently, Denver Water has three treatment plants each of which can produce at least 180 million gallons per day (mgd) (550 mgd delivery capacity). Compared to the next largest utility in Colorado, Aurora, which has three WTPs the largest of which can produce 80 MGD (210 mgd total capacity). ***Comment #767-48*** *(ID 5239)**:*** *PACSM Denver Water's near-term water resource strategy identifies a need for 18,000 acre-feet of new firm yield by 2030. Denver Water has not, however, substantiated the need for this volume of additional firm yield within the time frame addressed by the Moffat Project DEIS. In addition to the failure to adequately consider conservation and cooperative projects as discussed, supra, Denver Water's yield model incorporates sources of error within the yield estimate. The Platte and Colorado Simulation Model ("PACSM") relies on data that has not been updated in almost twenty years to provide firm yield estimates. The backbone data set for the model only runs through 1991, and does not include some of the driest and wettest years for the Upper Colorado River Basin.[21] Adding precipitation data from 1992 through the present would (1) increase the scope of the data set and thereby increase accuracy regarding average expectations, and (2) include the five wettest and driest years on record for the Upper Colorado River Basin. The Memorandum by Bishop-Brogden Associates, Inc., attached as Appendix B, and the Joint Rebuttal Report provide additional technical criticisms of PACSM. FOOTNOTE: [21] Jeff Clark, Memo, "Hydrology Review of the Moffat Collection System Project DEIS," March 17, 2010, Appendix A.* **Response #767-48:** The need for the 18,000 AF of new firm yield is

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 12 in the DEIS. The DEIS only estimates hydrologic changes during dry, average and wet years in isolation. The DEIS does not present any detailed information regarding changes to the frequency and duration of dry years. Using the same PACSM output completed for the UPCO study, an estimate can be of this type of information. • *Frequency of Dry Years* The actual streamflow records for the Fraser River at Winter Park streamgage were ranked based on annual volume, and a 'dry year' was assumed to be any year in the bottom 25th percentile (similar to the approach used to determine dry years for both the PBO for the Colorado River endangered species and for the current Wild & Scenic alternative management plan being developed by number parties, including DW). This resulted in a 25th percentile flow volume of 7,124 af/yr at this location. As shown on Table 7, historically 12 years out of the 45-year PACSM study period were considered 'dry years.' Using the UPCO hydrologic output for the same location shows that, following completion of the MCSP, the number of dry years will increase to 27 years out of 45. This represents a 225% increase in the number of dry years following completion of the MCSP compared to historic conditions. • *Duration of Dry Years* This analysis also shows that the duration and recurrence of back-to-back dry years will increase dramatically under the proposed action. Actual gage data for the 1947-1991 PACSM hydrology period shows that there have historically been a total of four sets of at least two back-to-back dry years, using the same 25th percentile of flows described above, with the longest period being four dry years in a row. The UPCO results show that, following completion of the Moffat Project, the Fraser River at the Winter Park gage will have seven sets of at least two back-to-back dry years, with the longest duration being eight years in a row (see Table 7). The DEIS needs to clearly describe this type of information for many locations in the source basin in order to fully evaluate the projected hydrologic changes and the environmental and other consequences of these changes. **4. Change in Peak flows** Peak flows during the runoff season may be critical for providing flushing flows to maintain aquatic habitat and channel maintenance flows that help to maintain the connection between the channel and the floodplain and transport sediment (Rathburn et.al, 2009; Pitlick and Wilcock, 2001). Figures 1 – 3 illustrate the magnitude of the hydrologic manipulation to the upper Colorado River basin over time (Figures 1 – 3 illustrate the average daily flow only). The DEIS does not provide sufficient information regarding the changes to peak flows to fully evaluate the impacts to the fluvial systems. Further, the DEIS does not provide any information regarding changes to the peak flows from Current Conditions to Full Use Existing System. While the Appendix H-4 does www.bbawater.com Bishop-Brogden Associates, Inc.	adequately explained in Section 1.4. Additionally, the two technical memoranda included in Appendix A describe in detail the models and methodologies used to estimate Denver Water's future demands by 2032. These memoranda also provide discussions of the economic and demographic data and forecasts included in the models. A summary of conservation measures implemented by Denver Water from 1980 to 2006 to reduce the demand in Denver Water's Combined Service Area is provided in DEIS Table 1-2. Denver Water's demand management and drought restriction efforts have been partially responsible for a decline in average daily consumption. Almost half (16,000 AF/yr) of the identified supply short-fall would be met with additional conservation savings. Denver Water plans to reduce its demand by 16,000 AF/yr by 2032 with additional conservation measures, which are anticipated to achieve long-term sustainable reductions in water use. An independent review of the projected conservation savings of 16,000 AF/year was conducted as part of the EIS analysis. Denver Water is relying upon these future savings in its demand projections to calculate the need for 18,000 AF/year of new firm yield. Refer to FEIS Sections 1.4.1.2 and 1.4.3.1 and Appendix A for a discussion of Denver Water's conservation efforts. Other actions that reduce Denver Water's need for additional water supplies were assumed to occur between 2006 and 2032. For example, between 2002 and 2032 additional annual savings of 24,000 AF were factored into the demand forecast for the replacement of inefficient plumbing fixtures by customers. Other supply-enhancement measures that are part of Denver Water's Near-Term Strategy include non-potable recycling, system refinements and cooperative projects, which are described in DEIS Section 1.4.3.

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	provide average daily hydrographs, there are too many alternatives shown on each plot to determine the actual change in streamflow.
	
	The DEIS does present a written description of the magnitude of peak flow reduction under the preferred alternative, however it does not provide any context regarding the actual streamflow changes at the time of the reduction. Table 8 presents an analysis of the maximum peak flow reduction that may occur by comparing the maximum daily flow reduction indicated in the text of the DEIS to the maximum peak daily historical streamflow from the available gage data at several locations in the upper basin. While the DEIS does not provide any information regarding the timing of the peak flow reduction, it would be reasonable to assume that it occurs at or near the time of peak available streamflows. Table 8 shows that the peak streamflow at five locations in the watershed could be reduced by as much as 78% compared to historic streamflow. This is a significant reduction in peak streamflows that could have a serious effect on the flushing flows necessary for a healthy aquatic habitat.
	
	• As shown in Table 8, maximum daily streamflow under Alternative 1a is reduced by as much as 78% from historical maximum daily peak streamflow for the locations shown. See DEIS Appendix H-6 for additional locations.
	• From the tables in the DEIS, it is not possible to estimate the timing of the peaks directly because only monthly averages are provided.
	• We attempted to use the average daily hydrographs in Appendix H-4 to understand changes in timing. However, the hydrographs are difficult to read and do not show sufficient detail to evaluate the changes in peak flows.
	• Hydrographs that *appear* to show delayed peaks (based upon visual inspection):
	  ○ H-4.2 Moffat Tunnel- Wet Year. Peak diversions under Alternative 1a occur later in the year than in the current scenario
	  ○ H-4.5 Below DW Diversion from Jim Creek- Average Year
	  ○ H-4.6 Below DW Diversion from Jim Creek- Wet Year
	  ○ H-4.12 Fraser River near WP- Wet Year
	  ○ H-4.16 Below DW Diversion from Little Vasquez Creek- Wet Year
	  ○ H-4.28 St. Louis Creek near Fraser Gage- Wet Year
	  ○ H-4.32 Fraser River below St. Louis Creek- Wet Year
	  ○ H-4.44 Fraser River at Granby Gage- Wet Year
	
	5. USFS Bypass Flows
	5.1 **Bypass Flow Reductions** The DEIS indicates that DW anticipates reducing the USFS Bypasses Flows in the Fraser basin much more in the future than has historically occurred. DW has reportedly only reduced the bypass flows once since they were established in 1970; in the winter of 2002/2003. The DEIS indicates that under the Full Use Existing System (by 2016), the bypass flows would be reduce 8 years out of the 45-
	
	www.bbawater.com Bishop-Brogden Associates, Inc.
		Please see the responses to Comment IDs 5199 and 5220.
		
		Comment #767-46 *(ID 5238)**:***
		Summary of Purpose and Need The Moffat Project Purpose and Need statement is overly narrow, includes unsubstantiated needs, and is based on outdated data. There is no demonstrated need for 18,000 acre-feet of additional yield in light of documented demand reduction through conservation efforts and Denver Water's overstatement of its contractual obligations. PACSM and Denver Water's demand model are also unreliable bases on which to base predictions of future firm yield and demand. The following figure illustrates the lack of a need for additional supply when conservation and elimination of the 3,000 acre-feet of contractual obligations to Arvada are considered. Figure 1 illustrates that when Denver Water's current conservation goals of 16,000 acre-feet by 2016 are taken into account, and the demand for the Arvada Contract is eliminated, there is at most 2,000 acre-feet of remaining demand. Given discrepancies in Denver Water's estimate of conservation savings that have already been achieved, supply may exceed demand through 2030. Figure 1 is intended to be compared with Table 1-1 that appears on page 1-10 of the DEIS. [SEE SOURCE FILE FOR FIGURE 1, SYSTEM SHORTFALL.] The time frame of Denver Water's predicted supply shortfall is also unsubstantiated. The DEIS relies on the assumption that demand will exceed available supply in 2016. This assumption is obviously inaccurate, however, as even the DEIS acknowledges that Denver Water expects to meet a significant portion of its demand through additional conservation efforts. Some of this conservation will be realized before 2016, so demand will not actually meet available supply until sometime after 2016. Unaccounted for in the DEIS are Denver Water's commitment to additional conservation efforts and participation in the WISE Partnership. These

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 14 year study period; or approximately one out of every six years (Table H-1.51). The total volume of reduced bypasses (increased Moffat Tunnel diversions) averages approximately 1,307 af/yr and ranges from 440 af/yr to 1,910 af/yr in those years of reduced bypasses. The water supply needs in the Fraser River basin are critically dependent upon the streamflow from many of the same tributaries as the MCSP. Especially during dry months and dry years, minor changes in streamflow in these areas have critical significance to the aquatic habitat and to the local basin water supply needs. The DEIS does not provide any detail about the time of year or at which of the four bypass locations that these bypasses would be reduced. Therefore it is impossible to understand the impacts to the water providers in this area from any future bypass reductions. The DEIS does not describe the extent to which the proposed project will increase the duration that the source area streamflow will be limited to only the minimum USFS bypass flows. For example, Table 9 presents a comparison of the number of months during the PACSM hydrology period that the streamflow was at or below the USFS minimum bypass flows using actual historic gage data and the UPCO PACSM output for Scenario 3 (Alternative 1a) for the Fraser River near Winter Park. This table shows that, over the 45-year study period, the total number of months of minimum flow will increase from 21% of the time to 49% of the time annually. It also shows that this increase in minimum flow frequency will be more extreme in certain months such as August and September. 5.2 **Elimination of Bypass Flow Reductions** Due to the significant level of existing and proposed depletions from the Fraser River basin, the existing bypass flows are critical to the aquatic habitat and to protect critical water supplies. The COE should require as a condition of the permits <u>that the first benefit of the MCSP is to provide sufficient storage to eliminate the need for any future bypass reductions</u>. The total volume of bypasses shown on DEIS Table H-1.51 averages approximately 1,307 af/yr. This volume is approximately 2% of projected Moffat diversions and only 0.4% of DW's total system demands at Full Use condition, yet is critical to local water resource needs. 5.3 **Other Bypass Flow Reductions** DW has similar minimum bypass flows from Dillon Reservoir and other locations that can be reduced during certain conditions. However, the DEIS does not provide any information regarding future projected bypass reductions at the other locations. The DEIS does indicate that the bypasses from Dillon Reservoir have not been reduced historically, and are not modeled to be reduced out of Dillon Reservoir under any of the project alternatives [DEIS 4-81]. However, the DEIS does not www.bbawater.com Bishop-Brogden Associates, Inc.	*unaccounted for sources of demand reduction and additional supply will likely meet Denver's water needs well beyond 2030.* **Response #767-46:** The Purpose and Need Statement is clearly one unique and developed purpose as follows: "… to develop 18,000 acre-feet per year (AF/yr) of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitment to its customers." Many underlying, interrelated needs can contribute to the discrete purpose of the Project. It is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the four issues would jeopardize Denver Water's ability to meet projected demand needs. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. A broad study area was selected to allow for a comprehensive inventory of possible sources and components for alternative screening. The Front Range area included: • Nearby Foothills – area east of the Continental Divide, downstream from the confluence of the

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 15 provide any information regarding future projected bypass reductions at the other locations. The DEIS should provide an analysis of the increased yield and the environmental consequences of various combinations of bypass reductions to minimize the impacts to the source areas. 6. **Changes in Flushing Flows** As described above, peak flows during the runoff season are crucial for providing flushing flows to maintain aquatic habitat and channel maintenance flows that help to maintain the connection between the channel and the floodplain and transport sediment. The DEIS does not provide any analysis of the historic, current or projected occurrence of flushing flows for any purpose. An analysis conducted under Phase 3B of the Grand County Stream Management Plan provides the following recommendations for flushing flows in the Fraser River basin to maintain a healthy fish habitat: Grand County Stream Management Plan flushing flow estimates (2008) | Site	2008 3-Day Peak (cfs)	Flushing Flow (cfs)	Riffle d50 (mm)	Mean $\frac{1}{2}$ dmax (mm)	RSI
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F3	100	110-175	75	170	90
F6 **	784	250-360	80	117	77
F9	1167	250-460	68	121	92
RC1	84	130	65	148	97
RC2	Unknown	200	35	120	99
F-VC	203	80-110	100	130	64
F-StL	257	50-180	82	113	72 | In order to estimate the potential changes in the frequency of flushing flows under the Moffat Project, the UPCO Tool was used to calculate the number of years that the upper value of the recommended flushing flow range at the Fraser River at Winter Park location (F3 = 175 cfs) will be satisfied under the DEIS preferred alternative. Table 10 compares the frequency of future flushing flows to the *actual* number of years that the same flow has been met historically. As shown in Table 10, the recommended flushing flow has historically been met in 44% of the years (20 out of 45 years). Based on the UPCO output, the frequency of flushing flows will decrease to 36% of years (16 out of 45 years) under the DEIS preferred alternative. Not only does the number of years that satisfy the flushing flow recommendation decrease under the preferred alternative, but the longest www.bbawater.com Bishop-Brogden Associates, Inc.	North Fork South Platte and the South Platte rivers; upstream from the confluence of Clear Creek and the South Platte rivers; upstream from the confluence of Coal Creek and Boulder Creek; and upstream from the confluence of South Boulder Creek and Boulder Creek • Nearby Plains and Other – area east of the Continental Divide and between the Front Range Foothills of the South Platte and upstream of the confluence of the Big Thompson and South Platte rivers; and other miscellaneous discrete components that were identified • Upper South Platte – South Platte River Basin upstream of the confluence of the North Fork South Platte and the South Platte rivers. In 2010, Denver Water updated their water demand projections based on the most recent population and demographic projections available from the Denver Regional DRCOG Colorado State Demographer's Office and other relevant sources of demographic data. The updated demands are expected to exceed Denver Water's available supplies in the year 2022. The Corps has independently evaluated the updated projections and found them reasonable for use in the FEIS. An independent review of PACSM was conducted for the Moffat Project EIS, which concluded that PACSM is adequate for the modeling purposes of this EIS and can be relied on to provide hydrologic information (Boyle 2003, 2004). As a component of the Upper Colorado River Basin Study (UPCO), an additional independent review of PACSM was conducted. That review concluded that the model adequately simulates the hydrology, major water rights and the operations of major water storage and diversion projects within the Colorado River Basin for the purpose of that multi-agency study, which addresses long-range water

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 16 duration between the recommended flushing flows increases from 5 years to 9 years. Increases in duration between flushing flows has the potential to negatively affect aquatic communities. 7. **Significance of Small Flow Reductions** Small changes in streamflow in the Fraser and tributaries are significant to the aquatic environment. *DEIS at p. 4-39.* The statement that flows will change by less than "1cfs more than 80% of the time" is misleading since it does not reveal the potentially dramatic changes in flow that occur the other 20% of the time [DEIS at p. 4-39]. Flow reductions would occur at higher flow rates in wet years and there would be flow changes of less than 1 cfs more than 80% of the time in basin upstream of the St. Louis Creek confluence [DEIS 4-39]. In DEIS Appendix H-7.1, the DEIS says diversion increases under Full Use (2016) and under the Preferred Alternative (2030) are significant and reduce stream flows in some Fraser River and Williams Fork River tributaries by 60%. DEIS at p. 4-37 through 4-39, and Appendix H-7.1. The DEIS projects a decrease in average monthly flow for June in the Fraser River below Winter Park of 23 cfs and concludes that these impacts are insignificant. DEIS at p. 4-37 through 4-39, and Appendix H-7.1. Yet, a decrease of 23 cfs on the Fraser River represents a reduction in flow of 43% for June from the Full Use (2016) baseline (Appendix H-3.6). A decrease of 29 cfs is predicted from Current Conditions (2006) which represents a flow reduction of 49%. (Appendix H-1.10). The modeled 2 cfs decrease on McQueary Creek represents a reduction in flow of 24% from the Full Use (2016) baseline. A decrease of 3 cfs is predicted from Current Conditions (2006) which represents a flow reduction of 44%. (Appendix H-1.31). The projected flow reductions of this magnitude have the potential to negatively impact macroinvertebrate populations, fisheries, habitat connectivity and water quality, and need to be evaluated more thoroughly. **Other Key DEIS Issues** 1. **Alternatives Analysis** Under the DEIS, ALL of the action alternative include some level of depletion from the Fraser and the Blue Rivers, with the majority derived from the Fraser River. The DEIS fails the requirements of 404b1A(a) guidelines regarding least environmentally damaging practicable alternatives. The DEIS should include detailed consideration of the following options that may reduce or eliminate the need for additional diversions from an already heavily depleted stream systems (see Figures 1 through 3): • Options utilizing demand management during critical periods. DW would still have the 30,000 af Safety Factor to rely on. www.bbawater.com Bishop-Brogden Associates, Inc.	supply planning for numerous West Slope entities in Grand and Summit Counties (UPCO PACSM Review Committee 1999). As described in DEIS Section 1.4.3.1, conservation measures are designed to achieve long-term sustainable reductions in water use. There is a considerable amount of uncertainty when implementing conservation programs as there is no way to be certain the predicted savings would occur. However, monitoring and program adjustment can help assure anticipated conservation changes would be achieved. The Moffat Project identified a 34,000 AF/yr. deficit in Denver Water's supply compared to projected demand. This shortfall would be met by 16,000 AF/yr. of additional conservation. Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). FEIS Section 4.5.3 has a full description of the WISE project. The unused reusable water identified by the WISE project was considered by the Moffat Project EIS and was incorporated into several Alternatives (7, 8, 10, 11, and 14) including two of the five EIS alternatives (8a and 10a). Using the unused excess capacity of Aurora's Prairie Water's Pipeline does not met the Purpose and Need of the Moffat Project as it does not deliver water to the north end of Denver Water's Water Collection System.

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 17 • The use of unused reusable effluent in a manner similar to the WISE project currently being considered by DW. Table 2-9 indicates that DW would have nearly 20,000 af/yr of unused reusable effluent during its critical period (1954-1957). Given that this volume matches perfectly with DW's stated Need for additional yield, it seems highly illogical that the use of this unused asset wasn't included as one of the 'less environmentally damaging practicable alternatives.' • The temporary use of various potential supplies such as temporary fallowing of agricultural supplies, temporary use of CBT units, access to 'dead pools' at Gross, Chatfield and other reservoirs, interconnection with other providers, etc. • Another logical solution that should be included in any final alternative are North-South interconnect options. While this may not add to DW's system-wide firm yield, it would eliminate the non-supply issues identified in the P&N section of the DEIS, and open up other options to increase yield (such as water from the WISE project). 2. **Percent System Changes** The MCSP as proposed in the DEIS would increase DW's system yield from 345,000 AF to 363,000 AF, not including DW's 30,000 AF Safety Factor, which represents a 5% increase. However, as shown on the table below, the Fraser River's native water supplies have already been depleted by 73% at one location (Fraser River near Winter Park, the only gage with streamflow records that pre-date the Moffat Project). The projected additional depletions between now and Buildout will further reduce the natural streamflows by over 80%. Fraser River Streamflow near Winter Park / Streamflow Volume (af) / Percent of Native Flow Prior to Moffat Project (1911-1935) / 32,094 / Berthoud Pass Ditch (725 af/yr) / 31,369 / 98% DEIS Current Conditions (2006) / 8,529 / 27% DEIS Full Use (2016) / 7,971 / 25% DEIS Buildout (2030) / 6,053 / 19% DEIS info from Table H-7.1 The DEIS does not contain a similar table for the Blue River basin. Table 12 was developed based on recorded streamgage data and information from the DEIS, which shows that approximately 39% of the native Blue River streamflow will remain following completion of the MCSP. The DEIS reaches a flawed conclusion that the preferred www.bbawater.com Bishop-Brogden Associates, Inc.	***Comment #767-47*** *(ID 5237)**:*** *Failure to consider reasonable alternatives. NEPA regulations require that an EIS "rigorously explore and objectively evaluate all reasonable alternatives."[22] The consideration of alternatives is "the heart of the environmental impact statement,"[23] because such review promotes NEPA's twin aims of "informed agency decision-making" and "public access to information."[24] "Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement [is] greatly degraded."[25] The Moffat Project DEIS does not consider a sufficient range of alternatives because alternatives were eliminated based on the inadequate Purpose and Need statement and unsubstantiated cost estimates, and non-structural alternatives were not considered in a meaningful way if at all. FOOTNOTES: [22] 40 CFR § 1502.14[a]. [23] 40 C.F.R. § 1502.14. [24] See New Mexico ex rel. Richardson v. Bureau of Land Management, 563 F.3d 683, 703, 707 (10th Cir. 2009). [25] Id. at 708. In determining the range of reasonable alternatives to be considered, the U.S. Council on Environmental Quality has stated that "the emphasis is on what is reasonable, rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint using common sense, rather than simply desirable from the standpoint of the applicant."[26] Under NEPA, the comparison of a full spectrum of alternatives should provide "a clear basis for choice among options for the decision maker and the public."[27] Although the DEIS claims that "[t]he five alternatives to be carried forward for EIS analysis represent a reasonable cross-section of practical alternatives, which encompass a broad range of potential water supplies and storage sites,"[28] all of the alternatives rely on transmountain diversions and*

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 18 alternative is the 'least damaging practicable alternative' by further depleting an over-depleted stream system to result in a modest gain to the yield of DW's system. **3. Proposed Mitigation** Chapter 4 and Appendix M present the proposed mitigation for the MCSP. DW proposes minimal levels of mitigation for water quality, stream morphology and sedimentation, wetlands, riparian vegetation, aquatic life, among other facets, but does not propose any mitigation for loss of streamflow. Rather, the DEIS concludes that the loss of streamflow is unavoidable. In fact, the west slope water entities have made it well known that additional water supplies to the Fraser, Blue and Colorado River basins are critically needed at times. The proposed mitigation needs to include additional water supplies to these basins to meet these critical streamflow, aquatic habitat, water quality and water supply needs prior to increasing the depletions from a stream already heavily impacted by historic diversions. Appendix M to the DEIS indicates that DW proposes to increase the elevation of the Gross Reservoir enlargement by six feet to create a 5,000 af "Environmental Pool" for the benefit of streamflows on 17miles of South Boulder Creek. The proposed mitigation is completely flawed in that it proposes to increase the environmental condition to a stream that is already improved by additional imports from the Moffat project, whereas there is no reported mitigation to improve the environmental condition of the source area stream that is already depleted of 60,000 af/yr of natural streamflow along approximately 57 miles of impacted stream within the MCSP study area. **4. DW's South Platte River Supplies** Prior to the development of any additional diversions from river systems that are already heavily depleted (see for example Table 11 showing depletions of approximately 70% of the pre-project supplies at the Hot Sulphur Springs), DW should be required to maximize the use of its existing and future South Platte River basin water rights and water supplies. • The DEIS indicates that during the average five dry years shown, DW projects to release water from Dillon Reservoir to meet system demands. As shown on Figure H-2.8, Dillon contents will be approximately 35,000 AF less than Current Conditions dry year, and will be approximately 139,000 af below capacity. While at the same time, DW's Antero and Elevenmile Reservoir remain essentially full during the five dry years shown in the DEIS (see Figures H 2-29 and 2-32). In fact, the DEIS shows that these reservoirs will have more water stored in them during dry years than during average years. Given the magnitude of the aquatic, recreational, economic, visual and www.bbawater.com Bishop-Brogden Associates, Inc.	*large storage facilities. Strategies other than new supply projects are, however, feasible alternatives to address Denver Water's demands. FOOTNOTES: [26] U.S. Council on Environmental Quality. NEPA's 40 Most Asked Questions, #2a. Accessed January 8, 2010: http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm. [27] 40 CFR § 1502.14. [28] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives, p. 2-19. In addition to the procedural standards set by NEPA, the Clean Water Act requires the Corps to consider the least environmentally damaging practical alternative ("LEDPA") prior to issuing a § 404 permit.[29] Under the § 404 Guidelines, "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."[30] Because the screens applied to the alternatives initially considered in the Moffat DEIS were based on an overly narrow Purpose and Need statement, the least environmentally damaging alternatives were prematurely eliminated from further consideration. The DEIS also fails to adequately consider, at any stage in its review, non-structural alternatives such as conservation and reuse. The artificially narrow range of alternatives considered by the Corps does not consist of the thorough review mandated by NEPA and necessary to determine the LEDPA. FOOTNOTES: [29] See, Clean Water Act ("CWA") § 404(b)(1) Guidelines, 40 C.F.R. pt. 230 ("§ 404 Guidelines"). [30] 40 C.F.R. § 230.10(a).* **Response #767-47:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The Corps did not identify a

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 19 other values associated with Dillon Reservoir, the DEIS appears to inappropriately burden the West slope supplies and increase environmental effects while preserving to a maximum extent the East Slope supplies. The DEIS on page 3-57 indicates that DW uses these facilities for drought reserves, but provides no reasonable explanation why Dillon Reservoir cannot be used to accomplish this same purpose instead of these comparatively unused reservoirs. • The City Ditch is another example where DW is currently letting an immensely valuable South Platte water right go unused. By contract, DW is currently entitled to receive 13 cfs of a very senior water right for 30 cfs from the South Platte River near Chatfield Reservoir. DW has historically used this ditch since 1861 to serve portions of its service area. In recent decades, DW has used this ditch to irrigate various parks, golf courses and other areas within its service area. However, DW discontinued use of this water right in 2001 and converted these uses to reusable effluent. DW is allowing a senior water right capable of delivering approximately 5,500 af/yr of water supplies to go unused. The alternatives analysis for the MCSP is flawed in that DW, which still owns this water right, and potentially others, that could be used to meet the P&N. Moreover, DW the alternatives that incorporate the reuse of effluent are limited to 5,000 af/yr due, in part, to the lack of availability of reusable effluent. DW appears to have effectively, and intentionally, abandoned a very senior irrigation right in the native South Platte basin in favor of reusable effluent. If DW were to maximize its existing decreed native basin supplies, it would result in additional yield of reusable supplies and reduce the need for additional depletions from the Fraser River. **Summary** Based on our review and analysis of the hydrologic information contained in the DEIS as described above, it is our opinion that the DEIS conclusions regarding hydrologic changes, and therefore the resource effects, may be significantly inaccurate for all of the river segments effected by the MCSP. The hydrologic data set used in PACSM does not include some of the most extreme hydrologic conditions for the source area streams, and significantly understates dry-year conditions. Further, it does not accurately portray existing conditions and appears to significantly understate changes in diversions and overstate streamflow conditions. The information does not support an analysis of effects due to cumulative overall depletions to the stream systems or to the conversion of historically diverse hydrology to significant periods of minimum streamflows. The use of blended averages obscures and diminishes the actual daily, monthly and yearly changes that are likely to occur, as well as the extreme changes in very wet or dry years, which should be disclosed for review and consideration with regards to the www.bbawater.com Bishop-Brogden Associates, Inc.	least environmentally damaging practicable alternative (LEDPA) in the DEIS. The Corps will make a determination of the LEDPA based on its review of the information and analysis contained in the FEIS, per the Corps' Section 404 regulations. Potential impacts to recreation, among other environmental and social impacts, are considered as part of the LEDPA determination. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. Therefore, supplying water to the Moffat Collection System was appropriately used as a criterion for alternative screening. ***Comment #767-39*** *(ID 5236)**:*** *Proposed Alternatives The DEIS begins its review with a pool of over 300 potential projects. Alternatives are then eliminated from further consideration through a series of "screens." These screens remove alternatives from further consideration that do not meet the*

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 20 hydrologic and flow-related resource effects. Finally, the DEIS provides virtually no streamflow mitigation, and in fact projects to increase the frequency and duration of existing bypass flow reductions, to a stream system that is currently suffering from water supply and environmental flow shortages. These concerns, and the associated resource effects, should be more thoroughly evaluated by the US Army Corps of Engineers prior the further consideration of this project. www.bbawater.com Bishop-Brogden Associates, Inc.	*Purpose and Need statement, that are assessed to be significantly higher in cost, or that are determined to have other flaws such as relatively greater environmental impacts. One of the significant flaws with the alternative screening process, however, is that the alternatives are not sufficiently described to allow the public to determine whether the alternatives were appropriately eliminated. For example, the indirect potable reuse alternatives are described as including a water treatment plant and storage capacity. It is unclear, however, why substantial storage capacity is necessary – whether the storage is intended to provide carryover capabilities across years or to store reusable effluent from winter months to summer months. One advantage of the use of reusable effluent to meet demand is that more reusable water is available in dry years, precisely when there is a need, such that carryover storage is not necessary. The inclusion of additional storage capacity drives up the relative cost of the reuse alternatives, though there is no explanation for the necessity for storage. The initial screening of alternatives based on the Purpose and Need statement resulted in inappropriate elimination of alternatives because of the flaws inherent in the statement. One of the initial eliminating criteria included in the DEIS is that an alternative must "produce a solution within the necessary near-term timeframe (by 2016)," which requirement is based on Denver Water's overstated water supply shortfall and flawed expectation that the shortfall will occur by 2016. In fact, Denver Water should not expect a shortfall in supply, if at all, until some point well after 2016. Fifteen alternatives were eliminated, however, on the basis that they could not produce a solution within the necessary time frame. Another eliminating criterion is that an alternative including a storage facility must be capable of storing at least 15,000 acre-feet in a surface impoundment. The rationale for this criterion is based in part on the unsubstantiated assumption that Denver Water has a need for additional firm yield of*

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	Moffat DEIS Hydrology Analysis Memo March 17, 2010 Page 21 **References** Colorado Division of Water Resources' Colorado Decision Support Systems (CDSS) website: http://cdss.state.co.us/DNN/default.aspx. Draft Environmental Impact Statement for the Moffat Collection System Project, October 2009. Hydrosphere, May 2003, Upper Colorado (UPCO) River Basin Study PACSM Data Display Tool. Pitlick, J., and P. Wilcock, 2001, Relations between streamflow, sediment transport, and aquatic habitat in regulated rivers, in *Geomorphic Processes and Riverine Habitat*, edited by J. Dorava, et al., pp. 185-198, AGU, Washington, D.C. Rathburn, S., D. Merritt, E. Wohl, J. Sanderson, H. Knight, 2009, Characterizing environmental flows for maintenance of river ecosystems: North Fork Cache la Poudre River, Colorado, in *Geological Society of America*, Special Paper 451. Tetra Tech, et al, April 2008, Grand County Stream Management Plan. U.S. Dept of Interior, U.S. Geological Survey's website: http://waterdata.usgs.gov/co/nwis/current/?type=flow&group_key=basin_cd. www.bbawater.com Bishop-Brogden Associates, Inc.	*18,000 acre feet, which would require about 72,000 acre-feet of new storage. In addition, the justification for this screen is that too many storage vessels would prove "unmanageable. "A minimum storage volume for any one component is needed to reduce the number of possible storage elements to a manageable and practical combination."[31] There is no justification for the assumption that more than five storage facilities would necessarily prove unmanageable. In addition, because 18,000 acre-feet is an overstatement of Denver Water's actual needs smaller storage vessels could be utilized to meet Denver Water's shortage without exceeding five in number. Ninety-four alternatives were inappropriately eliminated on this basis. FOOTNOTE: [31] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives. A similar criterion is that the alternative must provide water "in amounts sufficient to be practically developed," which is defined as providing at least 20% of the needed additional firm yield (or 3,600 acre-feet).[32] There is no justification as to why Denver Water's source of supply for the Moffat Project must be made up of options that supply greater than 3,600 acre-feet. This criterion eliminates possible alternatives to the Moffat Project which would consist of portfolios of smaller projects having less environmental impact. FOOTNOTE: [32] Moffat Project, Alternatives Screening Report, p. 28. At the Screen 1C stage, the relative costs of remaining alternatives were compared. Several alternatives relying upon reuse were eliminated from further review based on their high relative cost. The DEIS does not provide sufficient information about how these cost estimates were developed, to allow the public to determine whether these alternatives were appropriately rejected. For example, there is no evidence that the economies of scale that might be obtained from constructing a treatment plant with excess capacity were considered. The additional capacity could be used to offset Denver Water's needs from other components of its system, or could be*

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		developed as part of a cooperative effort with other water supply entities similar to or in conjunction with the WISE Partnership. As an illustration, Alternative 8a states that the AWT Plant would be expected to operate for 2-3 years and then stand idle for 6-7 years. The DEIS does not provide a justification for this mode of operation given that some reusable effluent would be available in most years. Excess capacity could be used to treat available water to reduce Denver Water's West Slope diversions as required by the Blue River Decree. **Response #767-39:** Approximately 20% of the total yield requirement was selected because providing a yield in one year out of four of at least 15,000 AF (3,750 AF/yr is approximately 20% of 18,000 AF/yr). If an alternative provides less than 15,000 AF once in four years or less than 3,750 AF/yr it was screened out. This criterion was primarily used to screen out water supplies as opposed to storage components. For example, new water supplies in the Cache La Poudre, Big Thompson, St. Vrain, Clear Creek, and Lower South Platte basins were eliminated because these basins are generally over-appropriated and new water rights would likely not yield 3,750 AF/yr or 15,000 AF once in four years. For Screen No. 1, storage sites in these basins were screened independently of water supplies. For the water supplies that passed Screen No. 1, refer to Table 2-9. Storage would also be required to provide firming and regulation to deliver the water when needed during droughts. Based on a storage-to-firm yield ratio of 4:1, it would require five reservoirs of 15,000 AF to provide the 72,000 AF of storage required to meet the Purpose and Need. Incorporating that many surface storage sites into an alternative is probably too complex to reasonably implement and manage. However, with this minimum storage volume, sufficient flexibility remains to consider components that might possibly be combined into a

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	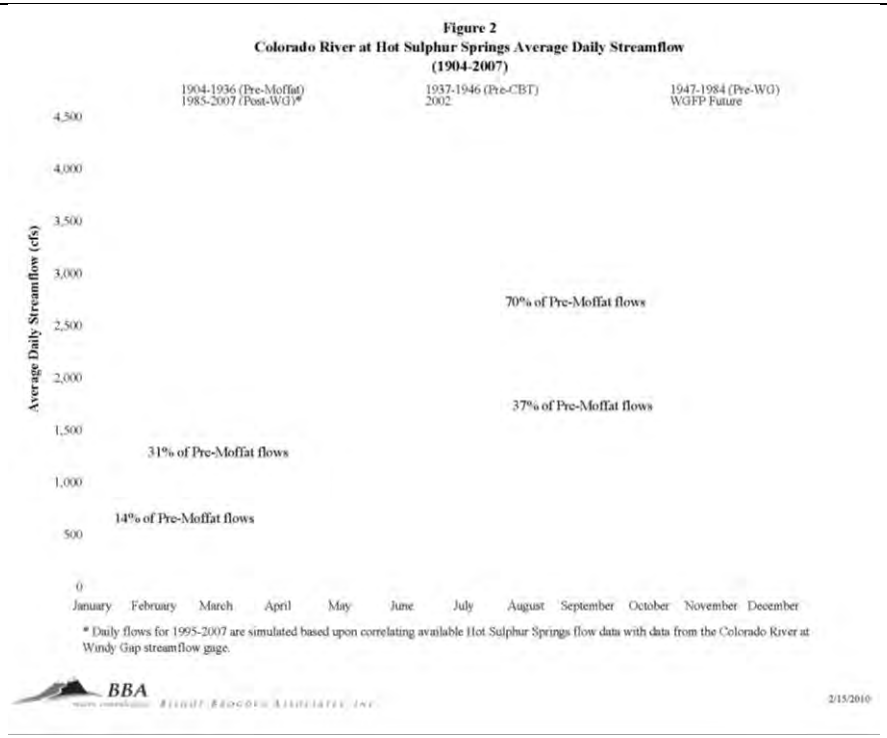	reasonable alternative in a subsequent screening phase. Denver Water's firm yield and its system storage to firm ratio of 4:1 were estimated using PACSM. The study period used in PACSM extends 45 years from 1947 through 1991 and includes Denver Water's critical drought period from 1953 through 1957. The critical drought period is the time span from the last time the storage reservoirs are full to the time all reservoir water is completely depleted and the reservoirs begin to refill. Denver Water's firm yield was determined to be 345,000 AF/yr (not including the 30,000 AF Strategic Water Reserve) based on implementation of the non-potable recycling project, system refinements, and cooperative projects that Denver Water assumes would be fully implemented in the near future. At this level of demand, PACSM results show that Denver Water's reservoirs were essentially full at the start of the critical drought period in 1953 and empty in April 1957 without causing any shortfall in meeting demand. Based on the total storage in Denver Water's system, its overall storage to firm yield ratio was estimated to be approximately 4:1. Four years is approximately the length of the critical period in Denver Water's PACSM simulation period; therefore, new reservoir storage must supply a firm yield over a 4-year period (a 4:1 storage-to-firm yield ratio). For example, the Proposed Action requires 72,000 AF storage at Gross Reservoir (4 x 18,000 AF firm yield). The storage required for the Proposed Action is estimated based on storage of surface water available from existing Denver Water rights for the Moffat Collection System. While a useful rule of thumb for storage in the Moffat Collection System, this ratio is sensitive to the location of the storage within Denver Water's system and the source of supply and cannot be universally applied to other portions of Denver Water's system or to other water systems. The storage to firm ratio was adequately analyzed using PACSM.

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		Re-useable effluent supplies are not consistent and would vary from day to day and seasonally. This is due to Denver Water operations and the amount of reusable water sent to WTPs. Denver Water maximizes South Platte water sources first, before using West Slope supplies. For the most part, South Platte water sources are not reusable and cannot be reclaimed when returned to the river as effluent. About half of Denver Water's West Slope supplies are reusable and when possible, Denver Water recaptures this water when it is returned to the river as effluent. Since the supply is variable from day to day and seasonally, Denver Water would not have a way to capture reusable effluent supplies when they are available or use reusable effluent when needed. As previously described, Denver Water uses a storage to firm yield ratio of 4:1 for storage in the Moffat Collection System. It is possible that more or less storage would be required to firm Denver Water's unused reusable effluent. The amount of storage needed is sensitive to the location of the storage within Denver Water's system and the timing and amount of reusable supplies available. In any case, storage is needed to make reusable effluent supplies firm yield. An alternative is considered practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" (40 CFR 230 Subpart B). The determination of what constitutes an unreasonable expense should generally consider whether the projected cost is substantially greater than the costs normally associated with the particular type of project. It is important to emphasize, however, that it is not a particular applicant's financial standing that is the primary consideration for determining practicability, but rather characteristics of the project and what constitutes a reasonable expense for these types of projects that are most relevant to practicability determinations. The Corps conducted a review of the

Comment Information	Comment	Comments and Responses
	Table 1 **Five Driest and Wettest Years at Select Upper Colorado River Basin Locations** **Based Upon Actual Stream Gage Data** **Colorado River blw Baker Gulch** Period of record: 1954-2009 **Ranch Creek near Fraser** Period of record: 1947-2009 **St. Louis Creek near Fraser** Period of record: 1947-2009 **Williams Fork River near Parshall** Period of record: 1947-2009 **Williams Fork River near Leal** Period of record: 1947-2009 **Colorado River near Kremmling** Period of record: 1962-2009 (excluding 1971) **Fraser River at Winter Park** Period of record: 1947-2009 **Vasquez Creek at Winter Park** Period of record: 1947-2009 **Colorado River near Dotsero** Period of record: 1947-2009 **Williams Fork blw Williams Fork Res** Period of record: 1950-1954, 1959-2009 **Williams Fork blw Steelman** Period of record: 1966-2009 **Notes:** Years highlighted in yellow indicate years that are not included in the FACSIM model study period (1947-1991) The Moffat DEIS top 5 driest years at all locations are 1954, 1955, 1963, 1977, 1981. The Moffat DEIS top 5 wettest years at all locations are 1952, 1962, 1983, 1984, 1986. Water year is defined as October 1 through September 30	cost-screen threshold, as noted in the comment and referenced in the Alternatives Screening Report (Corps 2007) as Boyle Engineering 2005. Five projects were selected for the comparative analysis: Windy Gap Firming Project, Northern Integrated Supply Plan, Southern Delivery System, East Cherry Creek Valley Northern Project, and Aurora South Platte Project. The estimated project costs ranged from $9,300/AF to $23,700/AF. The study concluded that a 4.0 cost threshold of $18,000/AF falls within the range of other project costs, and that a broad range of potential alternatives remained for consideration after applying the Cost Screen, The study and the Corps concluded that it is a reasonable threshold. The remaining alternatives also represent a reasonable cross-section of types of alternatives (i.e., transmountain diversion, reuse, aquifer storage, and purchase of agricultural water rights). As stated in DEIS Section 2.1.3, the Corps decided upon a cost threshold of 5.0, instead of 4.0, to be more conservative and inclusive to ensure a reasonable range of alternative remained in the EIS analysis. The Corps finds this approach consistent with the Section 404 regulations for screening alternatives. As part of Denver Water's obligation to reuse water under the Blue River decree, Denver Water currently uses its reusable supplies for exchanges, augmentation, contract deliveries, and its non-potable system to the extent they can in combination with gravel pit storage. Any remaining unused reusable effluent, which is primarily available in the winter months, was considered for inclusion in reuse alternatives. ***Comment #767-38*** *(ID 5235)**:*** *No Action Alternative The definition of the No Action Alternative included in the DEIS inflates expected environmental impacts and deflates, in comparison, the environmental impacts of the preferred alternative because it does not adequately capture the status quo*

Colorado River blw Baker Gulch

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	1954	19,060
2	2002	19,095
3	1981	22,092
4	1977	24,968
5	1989	25,680
Wettest		
1	1983	79,009
2	1984	77,155
3	1997	75,487
4	1995	71,040
5	1986	66,155

Ranch Creek near Fraser

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	1964	1,851
2	1963	1,896
3	2002	1,972
4	1968	2,441
5	1989	2,859
Wettest		
1	1983	22,726
2	1984	21,111
3	1995	20,210
4	1952	20,183
5	1949	18,387

St. Louis Creek near Fraser

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	5,673
2	2004	7,219
3	1963	7,222
4	2001	7,615
5	1964	8,048
Wettest		
1	1995	35,411
2	1952	34,760
3	1951	33,597
4	1947	32,868
5	1983	31,130

Williams Fork River near Parshall

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	27,789
2	1963	28,118
3	1954	30,330
4	1977	30,482
5	1966	36,725
Wettest		
1	1984	180,270
2	1983	168,879
3	2008	144,189
4	1962	134,745
5	1952	130,302

Williams Fork River near Leal

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	25,738
2	1954	32,355
3	1963	33,218
4	1977	38,902
5	1966	42,542
Wettest		
1	1984	127,608
2	1983	121,605
3	1995	111,830
4	1996	108,970
5	1997	101,779

Colorado River near Kremmling

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	378,513
2	2004	392,927
3	1964	412,112
4	1981	419,556
5	2003	432,119
Wettest		
1	1984	1,726,163
2	1983	1,307,073
3	1997	1,249,093
4	1962	1,209,679
5	1996	1,148,566

Fraser River at Winter Park

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	1954	4,292
2	2002	4,608
3	1963	4,661
4	1964	4,752
5	1981	4,901
Wettest		
1	1984	34,149
2	1957	31,634
3	1983	31,136
4	1995	30,870
5	1996	24,148

Vasquez Creek at Winter Park

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	1963	1,668
2	1964	1,843
3	1954	2,518
4	1968	2,962
5	1966	2,991
Wettest		
1	1983	28,124
2	1984	25,290
3	1995	25,062
4	2008	20,936
5	1958	20,776

Colorado River near Dotsero

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	650,183
2	1977	808,554
3	1954	830,043
4	2004	842,033
5	1981	870,792
Wettest		
1	1984	3,029,598
2	1983	2,358,362
3	1997	2,347,290
4	1962	2,317,164
5	1957	2,293,154

Williams Fork blw Williams Fork Res

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	1959	28,322
2	1967	30,613
3	1954	42,630
4	1965	50,139
5	1980	50,357
Wettest		
1	1984	184,538
2	1983	162,217
3	2008	149,810
4	1996	147,777
5	1952	143,278

Williams Fork blw Steelman

Rank	Water Year	Total Annual Volume (ac-ft)
Driest		
1	2002	1,748
2	2004	2,804
3	1976	2,981
4	1981	3,729
5	1977	3,729
Wettest		
1	1995	28,228
2	1984	26,025
3	1983	24,002
4	1996	23,160
5	1983	22,476

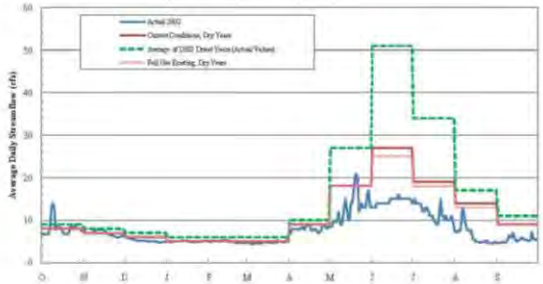
Comment Information	Comment	Comments and Responses
	Table 2 Comparison of DEIS and UPCO PACSM3 Scenario Driest and Wettest Years **Fraser River at Winter Park** Top 5 Driest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 4,505 2 1976 4,513 3 1961 4,549 4 1964 4,609 5 1955 4,620 **Average Volume: 4,559** Top 5 Wettest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1983 19,451 2 1984 19,140 3 1952 14,230 4 1969 12,074 5 1947 11,653 **Average Volume: 15,310** Top 5 Driest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 4,505 2 1955 4,620 3 1963 4,788 4 1977 4,849 5 1981 4,830 **Average Volume: 4,678** Top 5 Wettest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1952 14,230 2 1962 5,815 3 1983 19,451 4 1984 19,140 5 1986 7,494 **Average Volume: 13,146** **Difference in Average Annual Volume (ac-ft):** Dry Years (ac-ft) 119 — Wet Years -2,164 **Fraser River at Granby** Top 5 Driest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 35,888 2 1977 42,621 3 1963 44,046 4 1976 44,169 5 1961 45,876 **Average Volume: 42,360** Top 5 Wettest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1984 197,492 2 1983 170,194 3 1952 155,200 4 1970 130,115 5 1947 123,549 **Average Volume: 155,350** Top 5 Driest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 35,888 2 1955 53,046 3 1963 44,046 4 1977 42,621 5 1981 46,448 **Average Volume: 44,250** Top 5 Wettest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1952 155,200 2 1962 106,561 3 1983 170,194 4 1984 197,492 5 1986 84,686 **Average Volume: 142,867** **Difference in Average Annual Volume (ac-ft):** Dry Years (ac-ft) 1,890 — Wet Years -12,484 **Colorado River near Kremmling** Top 5 Driest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1964 375,492 2 1967 387,716 3 1955 403,809 4 1991 414,399 5 1981 421,783 **Average Volume: 400,640** Top 5 Wettest Years UPCO PACS3 Scenario — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1984 1,630,707 2 1983 1,133,301 3 1952 1,023,166 4 1986 1,080,738 5 1985 972,310 **Average Volume: 1,152,044** Top 5 Driest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 488,369 2 1955 403,809 3 1963 435,187 4 1977 447,841 5 1981 421,783 **Average Volume: 439,398** Top 5 Wettest Years DEIS — Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1952 1,023,166 2 1962 876,126 3 1983 1,133,301 4 1984 1,630,707 5 1986 1,080,738 **Average Volume: 1,132,808** **Difference in Average Annual Volume (ac-ft):** Dry Years (ac-ft) 38,758 — Wet Years -19,237 **Notes:** Highlighted years are common to the wettest and driest years in the UPCO PACSM3 modelling and the wettest and driest years shown in the Moffat Project DEIS. Total monthly streamflow volumes are based upon data from the UPCO PACSM Data Display Tool (Hydrosphere, 1/3/2012). The PACSM3 Scenario includes full build-out and incorporates the Moffat Expansion Project and Windy Gap Firming Project. The difference in average annual volume is equal to the average annual volume of the five wettest or driest years according to the UPCO PACSM3 modeling less the average annual volume of the five wettest or driest years shown in the DEIS (using UPCO PACSM3 data).	*baseline for comparison. "In requiring consideration of a no-action alternative, the Council on Environmental Quality intended that agencies compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo."[33] "[T]he current level of activity is used as a benchmark."[34] By inappropriately defining the "benchmark" the DEIS provides a distorted comparison of impacts. The No Action Alternative does not capture the status quo because it does not include appropriate drought management measures that Denver Water has and plans to employ in drought circumstances; relies on flawed assumptions about the expected shortfall in demand and the timing of that shortfall; and relies on the strategic water reserve to satisfy demand contrary to Denver Water Board policies. FOOTNOTES [33] Custer County Action Ass'n v. Garvey, 256 F.3d 1024, 1040 (10th Cir. 2001). [34] San Juan Citizens' Alliance v. Salazar, WL 824410, 17-18 (D.Colo. 2009). Many of the flaws embedded within the framing of the No Action Alternative are flaws that have already been highlighted with respect to the other alternatives or the framing of the purpose and need for the project. These problems include the overstatement of Denver Water's demand by failing to consider past and future conservation and inclusion of the contractual obligation with Arvada even though that obligation would not be triggered by the No Action Alternative. Non-structural demand management solutions are inappropriately excluded from the No Action Alternative even though conservation and drought measures are and will continue to be essential elements of Denver Water's drought response policies. The No Action Alternative therefore does not realistically capture the actions that actually will be taken by Denver Water if a § 404 permit is not granted by the Corps. Although the No Action Alternative purports to include drought restrictions, the qualitative description of restrictions that might be enacted is insufficient and misleading. Denver Water has*

Comment Information	Comment	Comments and Responses
	Table 3.1 **St. Louis Creek near Fraser Gage** **Comparison of Dry Year Average Daily Streamflow (cfs)**	*established water use reduction targets for various stages of drought, and has data which show reductions accomplished during the most recent 2002-2005 drought.[35] This data can, and should, be utilized in the DEIS to perform a more rigorous and quantitative evaluation of the impact drought response measures will likely have on drought demand. For example, in the 1977 drought, Denver Water achieved 33,000 acre-feet of savings by imposing mandatory watering restrictions. The 2002 IRP also provides a list of drought response measures that could be used rather than relying on the strategic water reserve such as reducing deliveries to Englewood under the 1995 agreement, drilling wells, pumping dead storage, and reducing deliveries to potable and nonpotable contract holders.[36] FOOTNOTES [35] USACE. 2009. DEIS Chapter 2: Proposed Action and Alternatives, Table 2-23. [36] 2002 IRP, Drought Response Plan Appendix, p. 12. Instead, to satisfy predicted demand, the No Action Alternative relies on Denver Water's 30,000 acre-foot strategic reserve, which is intended to be an emergency source of supply. The 30,000 acre-foot strategic water reserve "is not included in the total system supply because it is not considered available for meeting the total system demand under normal operating conditions . . . ."[37] This policy statement contradicts the use of the strategic water reserve to meet demand under the No Action Alternative. If the strategic water reserve is not included as a source of supply for the considered alternatives, and is not considered available supply as a matter of Denver Water Board policy, it should not be included as a source of supply under the No Action Alternative. Doing so distorts the environmental impact baseline against with the Project alternatives are compared. FOOTNOTE [37] Moffat Project DEIS, Purpose & Need, 1-14.* **Response #767-38:** The No Action Alternative is one which results in no

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average (cfs)
(1) Driest Year on Record													
Actual 2002	8	7	5	5	5	5	8	13	14	12	6	5	8
(2) DEIS Driest Years (based upon historical gage record from CDSS)													
1954	13	11	10	8	8	8	13	44	50	30	14	12	19
1955	12	11	9	8	7	6	12	43	96	58	35	18	26
1963	4	4	3	2	3	3	6	16	36	27	11	4	10
1977	7	7	6	5	5	5	8	16	41	30	12	10	13
1981	11	8	7	6	6	6	11	16	29	26	12	8	12
Average of DW/DEIS Driest Years	9	8	7	6	6	6	10	27	51	34	17	11	16
Percentage greater than 2002	13%	15%	25%	15%	13%	16%	21%	52%	71%	66%	62%	48%	51%
(3) Current Conditions Dry Years (based upon DEIS-Table H-1.18)													
Average Daily (cfs)	8	7	6	5	5	5	9	18	27	19	14	9	11
Percentage greater than 2002	**-2%**	**1%**	**13%**	**0%**	**1%**	**4%**	**11%**	**28%**	**46%**	**39%**	**54%**	**39%**	**29%**
(4) Full Use Existing Conditions Dry Years (based upon DEIS-Table H-1.18)													
Average Daily (cfs)	8	7	6	5	5	5	9	18	25	18	13	9	11
Percentage greater than 2002	**-2%**	**1%**	**13%**	**0%**	**1%**	**4%**	**11%**	**28%**	**42%**	**36%**	**51%**	**39%**	**27%**

Notes:
(1) Based upon St. Louis Creek near Fraser gage for period of record 1935-2008, available on CDSS database.
(2) Based upon historical gage data available on CDSS database. Dry years are based upon the five dry years identified in the Moffat Project DEIS.
(3) and (4) Based upon DEIS Table H-1.18.

St. Louis Creek near Fraser Gage
Comparison of Dry Year Average Daily Streamflow (cfs)



Comment Information	Comment	Comments and Responses
	Table 3.2 Fraser River at Winter Park Gage Comparison of Dry Year Average Daily Streamflow (cfs)	construction requiring a Corps Section 404 Permit. It may be brought by (1) Denver Water electing to modify its proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 CFR 1502.14(d)) and Section 404 Regulations (33 CFR 325 Appendix B.9.b(5)(b)).The EIS compares the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps required that Denver Water develop an alternative that did not require a Corps permit, yet did manage supply and demand to meet 15,000 AF/yr of supply. Since it is unrealistic to assume no future growth would occur and unrealistic that Denver Water would implement no changes to meet future water supply needs, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. The Corps believes the steps outlined for various restriction scenarios was a reasonable approach for developing the No Action Alternative. The need for the 30,000 AF safety factor (i.e., Strategic Water Reserve) is described in Appendix A of the DEIS (Review of Denver Water's Integrated Resource Plan [IRP], p. 11 and Supplemental Evaluation of Denver Water Demand Projections, pgs. 13-15). As stated, the safety factor is intended to protect against a host of uncertainties, including the constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. Reviews of other water utilities in the nation were

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average (cfs)
(1) Driest Year on Record													
Actual 2002	4	4	4	5	5	5	8	10	10	10	7	5	7
(2) DEIS Driest Years (based upon historical gage record from CDSS)													
1954	4	8	7	7	6	6	9	7	6	5	3	3	6
1955	4	4	6	6	5	5	10	15	13	8	4	3	7
1963	3	4	4	7	7	7	9	8	8	10	6	3	6
1977	6	6	6	5	5	5	8	10	11	9	9	7	7
1981	4	4	4	4	4	5	9	10	15	8	8	6	7
Average of DW/DEIS Driest Years	4	5	5	6	6	6	9	10	11	8	6	5	7
Percentage greater than 2002	-4%	16%	23%	19%	17%	12%	8%	3%	9%	-27%	-9%	-8%	-6%
(3) Current Conditions Dry Years (based upon DEIS-Table H-1.10)													
Average Daily (cfs)	4	4	4	4	4	4	4	8	10	9	9	6	6
Percentage greater than 2002	**-8%**	**-5%**	**-4%**	**-15%**	**-16%**	**-24%**	**-103%**	**-24%**	**3%**	**-11%**	**26%**	**17%**	**-21%**
(4) Full Use Existing Conditions Dry Years (based upon DEIS-Table H-1.10)													
Average Daily (cfs)	4	4	4	4	4	4	4	8	8	8	8	6	6
Percentage greater than 2002	**-8%**	**-5%**	**-4%**	**-15%**	**-16%**	**-24%**	**-103%**	**-24%**	**-21%**	**-25%**	**17%**	**17%**	**-28%**

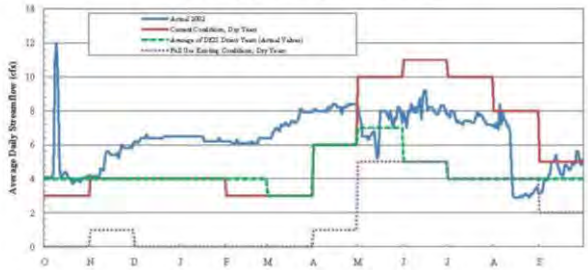
Notes:
(1) Based upon Fraser River at Winter Park gage for period of record 1911-2008, available on CDSS database.
(2) Based upon historical gage data available on CDSS database. Dry years are based upon the five dry years identified in the Moffat Project DEIS.
(3) and (4) Based upon DEIS Table H-1.10.

Comment Information	Comment	Comments and Responses
	Table 3.3 **Vasquez Creek at Winter Park Gage** **Comparison of Dry Year Average Daily Streamflow (cfs)**	conducted as part of the development of the Purpose and Need. Results of these reviews show that it is a reasonable and prudent practice for a utility the size of Denver Water to maintain a water supply reserve of 8% to 12% of installed supply. Denver Water's 30,000 AF safety factor is about 8% of its supply. If a portion of this safety factor were used to solve the Moffat Collection System problems a like amount would have to be simultaneously constructed to maintain the existing protection. Therefore, the safety factor should not be included as a component in the action alternatives evaluated in the EIS. These risks are not accounted for in the firm yield modeling and calculations, nor are they considered in the water demand projections. The safety factor must be held apart from the derivation of the 18,000 AF shortfall to appropriately reflect the risks that occur outside the models, methods and procedures to calculate that need. The purpose of the Moffat Project is not to build a Strategic Water Reserve in the North System in addition to the existing 30,000 AF Strategic Water Reserve. However, the additional storage helps balance North and South systems water storage. The amount of Strategic Water Reserve stored in each reservoir in Denver Water's system varies depending on hydrologic conditions and the severity of the drought. By adding storage to the North System, a portion of the Strategic Water Reserve could be stored in an enlarged Gross Reservoir because more water would be stored in the North System prior to dry-year sequences. Modeling of the No Action Alternative shows that none of the Strategic Water Reserve is available to the North System at times during the critical drought period because storage capacity is limited at Gross Reservoir. At the end of the critical drought period, Gross Reservoir is empty and the Strategic Water Reserve is located entirely in Denver

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average (cfs)
(1) Driest Year on Record													
Actual 2002	5	5	6	6	6	7	8	7	8	7	5	5	7
(2) DEIS Driest Years (based upon historical gage record from CDSS)													
1954	2	7	6	5	5	4	7	3	0	1	1	1	3
1955	2	2	4	7	6	6	10	8	2	1	2	1	4
1963	1	2	2	2	2	2	6	4	2	2	3	2	2
1977	3	3	2	2	2	2	5	8	7	5	6	8	4
1981	11	6	4	4	3	3	6	12	11	11	10	7	8
Average of DW/DEIS Driest Years	4	4	4	4	4	3	6	7	5	4	4	4	4
Percentage greater than 2002	-28%	-32%	-72%	-70%	-72%	-109%	-26%	-2%	-80%	-85%	-6%	-22%	-53%
(3) Current Conditions Dry Years (based upon DEIS-Table H-1.13)													
Average Daily (cfs)	3	4	4	4	3	3	6	10	11	10	8	5	6
Percentage greater than 2002	**-58%**	**-29%**	**-60%**	**-59%**	**-106%**	**-143%**	**-36%**	**28%**	**26%**	**25%**	**41%**	**9%**	**-13%**
(4) Full Use Existing Conditions Dry Years (based upon DEIS-Table H-1.13)													
Average Daily (cfs)	0	1	0	0	0	0	1	5	5	4	4	2	2
Percentage greater than 2002		**-418%**					**-719%**	**-44%**	**-63%**	**-87%**	**-19%**	**-128%**	**-265%**

Notes:
(1) Based upon Vasquez Creek at Winter Park gage for period of record 1935-2008, available on CDSS database.
(2) Based upon historical gage data available on CDSS database. Dry years are based upon the five dry years identified in the Moffat Project DEIS.
(3) and (4) Based upon DEIS Table H-1.13.

Vasquez Creek at Winter Park Gage
Comparison of Dry Year Average Daily Streamflow (cfs)



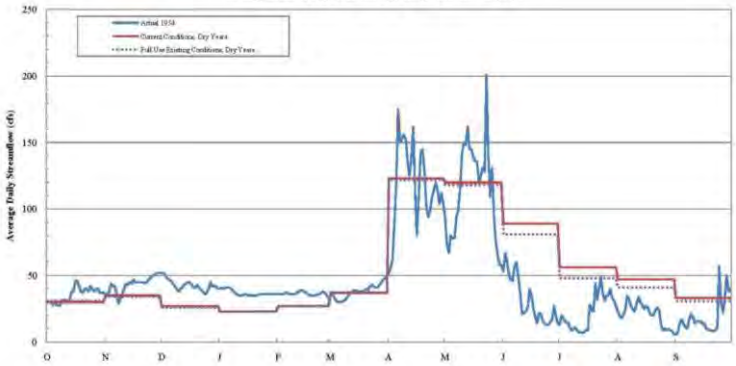
Comment Information	Comment	Comments and Responses

Table 3.4
Fraser River at Granby Gage
Comparison of Dry Year Average Daily Streamflow (cfs)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average (cfs)
(1) Driest Year on Record (1904-1956)													
Actual 1954	36	43	43	37	36	38	117	114	32	22	21	19	48
(2) Current Conditions Dry Years (based upon DEIS-Table H-1.26)													
Average Daily (cfs)	30	35	27	23	27	37	123	120	89	56	47	33	54
Percentage greater than 1954	**-19%**	**-24%**	**-59%**	**-60%**	**-35%**	**-3%**	**5%**	**5%**	**65%**	**60%**	**55%**	**43%**	**10%**
(3) Full Use Existing Conditions Dry Years (based upon DEIS-Table H-1.26)													
Average Daily (cfs)	31	34	26	23	27	37	122	118	81	48	41	31	52
Percentage greater than 1954	**-15%**	**-27%**	**-65%**	**-60%**	**-35%**	**-3%**	**4%**	**4%**	**61%**	**54%**	**48%**	**40%**	**6%**

Notes:
(1) Based upon Fraser River at Granby gage for period of record 1904-1956, available on CDSS database.
(2) and (3) Based upon DEIS Table H-1.26.

Fraser River at Granby Gage
Comparison of Dry Year Average Daily Streamflow (cfs)



Water's South System reservoirs.

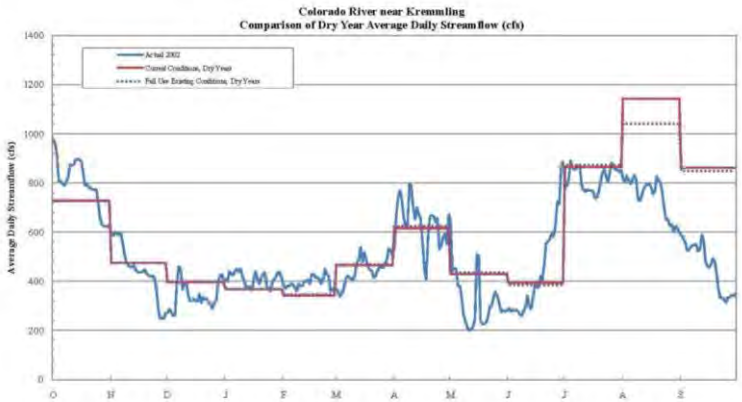
The need for the Project is 18,000 AF/yr instead of 15,000 AF/yr because Denver Water agreed to allow Arvada to purchase a percentage of increased firm yield that Denver Water is able to achieve in the Moffat Collection System, up to a maximum of 3,000 AF/yr. With a new Project, the need is for an additional 15,000 AF/yr of water supply for Denver Water's customers plus 3,000 AF/yr for Arvada. The discussion of the No Action Alternative states that the Strategic Water Reserve would be reduced to help meet the need for up to an additional 15,000 AF/yr of water supply for Denver Water customers. If a Project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr.

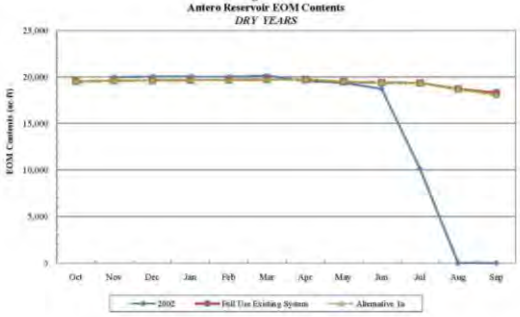
Comment #767-37 *(ID 5234)**:***
Conservation Alternative One of the essential shortfalls of the DEIS is the omission of conservation as a means to reduce Denver Water's demands under the No Action Alternative or as an independent alternative to the Moffat Project. Prior to committing large financial resources to expanding the Moffat Collection System and inflicting significant environmental costs, Denver Water ought to further consider demand management. Furthermore, Denver Water has already implemented conservation goals that will meet most, and possibly all, of predicted shortfalls in demand. The DEIS relies on the 2002 IRP to conclude that Denver Water plans to reduce its demand by 16,000 acre-feet per year by 2030 through the application of conservation measures. Although this statement of Denver Water's conservation goals was accurate at the time the 2002 IRP was issued, the Denver Water Board resolved in 2005 to accelerate its conservation plans. Pursuant to this resolution and as documented in the Tap-Smart Plan,[38] Denver Water now intends to reduce its demand by 29,000 AF by 2016. This conservation is in

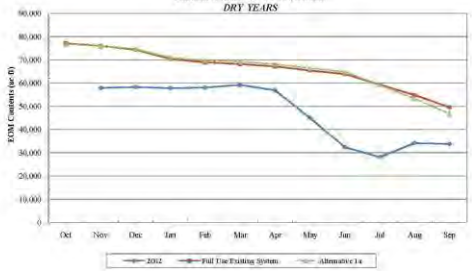
Comment Information	Comment	Comments and Responses
	Table 3.5 **Colorado River near Kremmling** **Comparison of Dry Year Average Daily Streamflow (cfs)**	*addition to 10,000 acre-feet of reduction in demand that Denver Water calculates had already been achieved between 2001 and 2005.[39] There is a 13,000 acre-foot difference between the 2002 conservation goal of 16,000 acre-feet and the 2006 Tap-Smart Plan goal of 29,000 acre-feet. Because meeting demand through conservation would not trigger the 3,000 acre-foot obligation to Arvada, the remaining shortfall is at most 2,000 acre-feet according to Denver Water's estimates. This 2,000 acre-feet of shortfall does not justify the construction of the Moffat Project with its resultant environmental impacts. Rather, Denver Water could meet this remaining demand through reuse projects, additional conservation efforts, or acceleration of natural replacement. FOOTNOTES: [38] Resolution and Tap-Smart Plan. [39] See Moffat Project DEIS, Section 1.4.1.2. Even assuming that there is an 18,000 acre-foot shortfall, the DEIS fails to consider conservation as a means to eliminate that shortfall. Conservation is likely to be less expensive than the Moffat Project and would certainly produce fewer environmental impacts. Denver Water estimates in its TapSmart Plan that conservation will cost an average of $4,540 per acre-foot to the Denver Water Board and $12,600 per acre-foot total, when costs to the public are considered. The 2002 IRP also provides a list of conservation measures, the estimated reduction in demand that would result, and their costs, attached hereto as Appendix C. [SEE SOURCE FILE FOR ATTACHMENT 4, TAP-SMART: THE CONSERVATION MASTER PLAN, DENVER WATER, SUBMITTED TO COLORADO WATER CONSERVATION BOARD APRIL 30, 2007.] The list illustrates the numerous conservation measures available to Denver Water to reduce demand. In comparison, the Moffat Project is estimated to cost about $7,777 per acre-foot of firm yield. The Moffat Project cost estimates do not include the socioeconomic and environmental impacts that are*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average (cfs)
(1) Driest Year on Record													
Actual 2002	797	447	343	411	395	445	637	320	440	819	745	461	519
(2) Current Conditions Dry Years (based upon DEIS-Table H-1.36)													
Average Daily (cfs)	728	474	396	368	342	465	616	429	393	864	1143	862	590
Percentage greater than 1954	**-9%**	**6%**	**13%**	**-12%**	**-16%**	**4%**	**-3%**	**25%**	**-12%**	**5%**	**35%**	**47%**	**12%**
(3) Full Use Existing Conditions Dry Years (based upon DEIS-Table H-1.36)													
Average Daily (cfs)	730	475	400	369	347	470	626	436	386	874	1042	849	584
Percentage greater than 1954	**-9%**	**6%**	**14%**	**-11%**	**-14%**	**5%**	**-2%**	**27%**	**-14%**	**6%**	**29%**	**46%**	**11%**

Notes:
(1) Based upon Colorado River near Kremmling gage for period of record 1905-2008, available on CDSS database.
(2) and (3) Based upon DEIS Table H-1.36.



Comment Information	Comment	Comments and Responses
	Table 4.1 **Antero Reservoir End-of-Month (EOM) Storage Content (in ac-ft)** *Dry Years* (1) 2002: Oct —, Nov 19,971, Dec 20,037, Jan 20,037, Feb 20,015, Mar 20,147, Apr 19,561, May 19,369, Jun 18,714, Jul 10,140, Aug 10, Sep 8, Average Annual 15,274 (2) Full Use Existing System: Oct 19,519, Nov 19,611, Dec 19,646, Jan 19,667, Feb 19,686, Mar 19,716, Apr 19,729, May 19,475, Jun 19,391, Jul 19,345, Aug 18,692, Sep 18,278, Average Annual 19,396 (3) Alternative 1a: Oct 19,519, Nov 19,610, Dec 19,646, Jan 19,662, Feb 19,664, Mar 19,715, Apr 19,728, May 19,527, Jun 19,383, Jul 19,327, Aug 18,670, Sep 18,007, Average Annual 19,372 (4) Difference in EOM Contents between 2002 and Alternative 1a: Oct —, Nov -361, Dec -391, Jan -375, Feb -351, Mar -432, Apr 167, May 138, Jun 669, Jul 9,187, Aug 18,660, Sep 17,999, Average Annual 4,085 Notes: (1) EOM storage contents are based upon Denver Water Daily Reports. (2) and (3) are based upon Moffat Project DEIS Table H-2.13. (4) is equal to (3) less (1). Positive values indicate that Alternative 1a EOM contents are greater than in 2002. Negative values indicate that Alternative 1a EOM contents are less than 2002 EOM contents. *Antero Reservoir capacity is 20,015 ac-ft. **Figure 4.1** **Antero Reservoir EOM Contents** *DRY YEARS*  	*expected to result. When those costs are factored in, the cost of the Moffat Project per acre-foot significantly exceeds the cost of additional conservation. The Corps has an obligation to take into account the total impacts of the project on the public, and therefore, to consider the entire cost of the Moffat Project including socioeconomic and environmental impacts. A related means of demand management to reduce water use is to raise rates. The advantage of raising rates to promote conservation as compared to imposing mandatory financial contributions towards construction of a large new water supply project, is that individuals can make their own determinations as to the costs and benefits of water use. The $140 million cost of the Moffat Project would ultimately be paid for by Denver Water users. An equivalent increase in rates would impose the same costs on the public, but would likely result in much more than 18,000 acre-feet of demand reduction per year. One report estimates that a 10% increase in water rates can be expected to result in a 6% decrease in water use over the long term.[40] Denver Water's 2008 annual report states that it received $205,941,000 in revenue from customers for water. A 10% increase would cost consumers $20,594,100 and would be expected to result in 22,740 acre-feet of savings (6% of expected system demand of 379,000 acre-feet). This approach would meet Denver Water's needs at about 15% of the cost of the Moffat Project to the public. Such an alternative is not, however, considered in the DEIS. FOOTNOTE: [40] Sheila M. Olmstead & Robert M. Stavins, "Comparing Price and Non-Price Approaches to Urban Water Conservation," September 2008, p.8.* **Response #767-37:** The Corps recognizes that Denver Water is currently developing a new IRP that will help guide water management over the next 40 years. Development of the new IRP is in the early stages and they are currently soliciting input from various stakeholders. The

Comment Information	Comment	Comments and Responses
	Table 4.2 **Cheesman Reservoir End-of-Month (EOM) Storage Content (in ac-ft)** *Dry Years* 	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average Annual
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
(1)	2002		57,892	58,289	57,812	58,087	59,209	56,885	44,987	32,424	28,126	34,197	33,754	47,424
(2)	Full Use Existing System	77,071	75,977	74,349	70,339	68,905	68,150	67,175	65,386	63,883	59,327	54,854	49,590	66,251
(3)	Alternative 1a	76,771	75,923	74,644	70,942	69,705	69,212	68,121	66,438	64,839	59,224	53,257	46,864	66,328
(4)	Difference in EOM Contents between 2002 and Alternative 1a		18,031	16,355	13,130	11,618	10,003	11,236	21,451	32,415	31,098	19,060	13,110	17,955 | Notes: (1) EOM storage contents are based upon Denver Water Daily Reports. (2) and (3) are based upon Moffat Project DEIS Table H-2.19. (4) is equal to (3) less (1). Positive values indicate that Alternative 1a EOM contents are greater than in 2002. Negative values indicate that Alternative 1a EOM contents are less than 2002 *Cheesman Reservoir capacity is 79,064 ac-ft. **Figure 4.2** **Cheesman Reservoir EOM Contents** *DRY YEARS*  	Corps will consider the information in the new IRP when it is finalized by Denver Water. Denver Water raised rates in February 2010 in order to implement the proposed projects and improvements outlined in their 10-year capital plan, which includes the Moffat Project. Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. All Denver Water Customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County of Denver. Costs are recovered from each customer

Comment Information	Comment	Comments and Responses
	Table 4.3 **Wolford Mountain Reservoir End-of-Month (EOM) Storage Content (in ac-ft)** ***Dry Years***	class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge. As shown in Table 1-1 in FEIS Section 1.4.1, the 379,000 AF of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water than they were prior to the 2002 drought. ***Comment #767-45*** *(ID 5233)**:*** *System Integration Alternative and Existing East Slope Supplies System integration is another alternative to the Moffat Project that is omitted from the DEIS. The integration of Denver Water with other water supply systems would provide opportunities for agricultural-urban cooperative water sharing agreements (AUA's).*

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average Annual
(1)	2002	43,600	42,900	41,900	41,300	40,500	40,500	40,600	42,700	41,000	39,500	31,200	24,700	39,200
	2003	18,900	18,200	17,500	17,100	17,000	16,900	19,700	36,700	45,200	43,400	42,300	41,400	27,858
	2004	40,500	40,400	40,100	39,900	39,700	41,000	45,200	52,300	53,800	51,100	41,500	32,900	43,200
	2005	29,400	28,900	28,600	28,400	28,100	28,000	32,900	48,600	59,400	59,700	57,300	56,000	40,442
	2006	55,300	54,800	54,400	54,200	54,100	54,500	65,300	66,700	65,700	63,900	57,200	52,000	58,175
(2)	2002-2006 Average	37,540	37,040	36,500	36,180	35,880	36,180	40,740	49,400	53,020	51,520	45,900	41,400	41,775
(3)	Full Use Existing System	50,064	49,423	48,816	47,635	47,270	46,731	46,822	54,754	55,213	52,977	46,632	34,310	48,387
(4)	Alternative 1a	50,012	49,370	48,763	47,628	47,263	46,725	46,815	54,747	55,207	52,970	46,625	34,256	48,365
(5)	Difference in EOM Contents between 2002-2006 Average and Alternative 1a	12,472	12,330	12,263	11,448	11,383	10,545	6,075	5,347	2,187	1,450	725	-7,144	6,590

Notes:
(1) 2002 EOM storage contents are based upon Denver Water Daily Reports. 2003-2006 values are based upon USGS data.
(2) is equal to the average EOM contents for 2002-2006, which is considered to be Wolford Mountain Reservoir's historical critical period according to the Colorado River Water Conservation District.
(3) and (4) are based upon Moffat Project DEIS Table H-2.7.
(5) is equal to (4) less (2). Positive values indicate that Alternative 1a EOM contents are greater than the average of 2002-2006 contents. Negative values indicate that Alternative 1a EOM contents are less than the average of the 2002-2006 EOM contents.
*Wolford Mountain Reservoir capacity is 66,000 ac-ft.

Figure 4.3
Wolford Mountain Reservoir EOM Contents
DRY YEARS

Comment Information	Comment	Comments and Responses
	Table 5 **Comparison of Average Monthly Streamflow** **Actual Historical Conditions versus DEIS "Current Conditions"** (all values in cfs) ***Dry Years*** (1) **Actual Historical Conditions** Based upon **2002** Gage Data (2) **DEIS "Current Conditions"** Based upon Dry Year Average in Appendix H-1 (3) **Percent Difference** Between "Current Conditions" and Actual Historical Conditions Location: Vasquez Creek Gage — May 7, June 8, July 7 — May 10, June 11, July 10 — May 30%, June 27%, July 30% Location: Fraser River at Granby Gage — May 38, June 16, July 11 — May 120, June 89, July 56 — May 68%, June 82%, July 80% ***Wet Years*** (1) **Actual Historical Conditions** Based upon **1984** Gage Data (2) **DEIS "Current Conditions"** Based upon Wet Year Average in Appendix H-1 (3) **Percent Difference** Between "Current Conditions" and Actual Historical Conditions Location: Fraser River near Winter Park Gage — May 124, June 230, July 114 — May 32, June 139, July 55 — May -288%, June -65%, July -107% Location: Fraser River at Granby Gage* — May 296, June 1,153, July 938 — May 662, June 1,139, July 436 — May 55%, June -1%, July -115% Location: Colorado River at Kremmling Gage — May 6,200, June 7,160, July 4,939 — May 3,193, June 6,252, July 3,750 — May -94%, June -15%, July -32% **Notes:** **(1)** All actual historical gage data is based upon daily streamflow data available from SEO CDSS database. Wettest (1984) and driest (2002) years are based upon the historical stream gage record at the Colorado River near Kremmling gage. *1995 was used to reflect wet year conditions at the Fraser River at Granby Gage because 1984 data is not available. **(2)** DEIS "Current Conditions" are based upon: Vasquez Creek Gage: Table H-1.13 Fraser River near Winter Park Gage: Table H-1.10 Fraser River at Granby Gage: Table H-1.26 Colorado River at Kremmling Gage: Table H-1.36 **(3)** The percent difference between actual historical conditions and "current conditions" is equal to (2) less (1) divided by (2). Positive values indicate that DEIS "Current Conditions" are greater than actual historical conditions. Negative values indicate that DEIS "Current Conditions" are less than actual historical conditions.	*Through integration, several water supply systems can be cooperatively used in a manner designed to increase or maximize total combined yields. In mature river basins like the South Platte, with a large number of urban and agricultural water users that are linked but not fully combined, system integration would enhance the opportunities for conjunctive use of surface and groundwater systems, coordinated approaches to effluent management and re-use, and Ag/Urban supply arrangements like rotational land fallowing and water leasing. Denver Water must also consider whether it has fully utilized its existing East Slope supplies. For example, Denver Water has an interest in the City Ditch which would be capable of delivering approximately 5,500 acre-feet per year and which appears to be unused by Denver Water.[41] Although some expense may be involved in cultivating existing water rights and putting them to use, these are sources of supply appropriate for consideration in the DEIS. FOOTNOTE: [41] See, Memo, Bishop-Brogden Associates, Inc, March 17, 2010.* **Response #767-45:** The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The alternatives screening process did consider the other water sources (agricultural water transfer, conjunctive use and municipal reuse) besides transmountain diversions in combination with storage components other than Gross Reservoir. These various water sources and 29 storage components from the "long list" passed the initial Screen 1A, as discussed in DEIS Section 2.1.2, Screen 1B. Two methods of acquiring agricultural water (ID 601) were reviewed: purchase or dry-year lease. It was assumed that the agricultural rights were available downstream of the Metro Wastewater

Comment Information	Comment	Comments and Responses
	Table 6.1 **UPCO Modeled Current Conditions - Wet Year** **Fraser River near Winter Park Total Streamflow (AF)** Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Total DEIS Avg* / 307 / 238 / 307 / 246 / 222 / 246 / 238 / 1,845 / 7,676 / 3,013 / 615 / 417 / 15,370 1952 / 246 / 243 / 246 / 246 / 230 / 246 / 479 / 496 / 9,803 / 692 / 615 / 417 / 13,959 1962 / 291 / 238 / 246 / 250 / 222 / 340 / 677 / 1,385 / 1,239 / 886 / 615 / 417 / 6,806 1983 / 246 / 238 / 246 / 295 / 235 / 278 / 254 / 865 / 12,945 / 5,277 / 817 / 417 / 22,114 1984 / 246 / 239 / 269 / 522 / 697 / 537 / 330 / 6,693 / 11,722 / 1,975 / 685 / 417 / 24,331 1986 / 264 / 239 / 246 / 246 / 223 / 272 / 456 / 663 / 5,472 / 629 / 615 / 417 / 9,743 Average / 259 / 239 / 250 / 312 / 322 / 334 / 439 / 2,020 / 8,237 / 1,892 / 669 / 417 / 15,390 Min / 246 / 238 / 246 / 246 / 222 / 246 / 254 / 496 / 1,239 / 629 / 615 / 417 / 6,806 Max / 291 / 243 / 269 / 522 / 697 / 537 / 677 / 6,693 / 12,945 / 5,277 / 817 / 417 / 24,331 Difference (Max,Avg) / 33 / 3 / 18 / 211 / 375 / 202 / 238 / 4,673 / 4,709 / 3,385 / 148 / 0 / 8,941 % Diff (Max,Avg) / 11% / 1% / 7% / 40% / 54% / 38% / 35% / 70% / 36% / 64% / 18% / 0% / 37% Difference (Max,Min) / 45 / 5 / 23 / 276 / 475 / 291 / 423 / 6,197 / 11,706 / 4,648 / 203 / 0 / 17,326 % Diff (Max,Min) / 16% / 2% / 8% / 53% / 68% / 54% / 62% / 93% / 90% / 88% / 25% / 0% / 72% **UPCO Modeled Current Conditions - Wet Year** **Fraser River near Winter Park Average Streamflow (CFS)** Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Average DEIS Avg* / 5 / 4 / 5 / 4 / 4 / 4 / 4 / 30 / 129 / 49 / 10 / 7 / 21 1952 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 8 / 165 / 11 / 10 / 7 / 19 1962 / 5 / 4 / 4 / 4 / 4 / 6 / 11 / 23 / 21 / 14 / 10 / 7 / 9 1983 / 4 / 4 / 4 / 5 / 4 / 5 / 4 / 14 / 218 / 86 / 13 / 7 / 31 1984 / 4 / 4 / 4 / 8 / 12 / 9 / 6 / 109 / 197 / 32 / 11 / 7 / 34 1986 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 11 / 92 / 10 / 10 / 7 / 14 Average / 4 / 4 / 4 / 5 / 6 / 5 / 7 / 33 / 138 / 31 / 11 / 7 / 21 Min / 4 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 21 / 10 / 10 / 7 / 9 Max / 5 / 4 / 4 / 8 / 12 / 9 / 11 / 109 / 218 / 86 / 13 / 7 / 34 Difference (Max,Avg) / 1 / 0 / 0 / 3 / 6 / 3 / 4 / 76 / 79 / 55 / 2 / 0 / 12 % Diff (Max,Avg) / 11% / 1% / 7% / 40% / 53% / 38% / 35% / 70% / 36% / 64% / 18% / 0% / 37% Difference (Max,Min) / 1 / 0 / 0 / 4 / 8 / 5 / 7 / 101 / 197 / 76 / 3 / 0 / 24 % Diff (Max,Min) / 16% / 2% / 8% / 53% / 67% / 54% / 62% / 93% / 90% / 88% / 25% / 0% / 72% Modeled current conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002). *DEIS average flow rates (cfs) from DEIS Table II-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations.	Reclamation District Plant. A portion of Denver Water's interests in the City Ditch are currently used to meet demands within the Denver Metropolitan area. The portion that is no longer used to satisfy demands historically met by the City Ditch has been previously included by Denver Water in its IRP among the water supply options which would be used to meet its service area demands. The implementation of the City Ditch water supply option is in progress, and includes the completed conversion of lands previously irrigated by the City Ditch to the Water Recycling Project. ***Comment #767-36*** *(ID 5232)**:*** *Reuse Alternatives Indirect potable reuse is a cost effective water shortfall solution and is rapidly spreading in use across the nation, with dozens of projects already operating in California, Florida, Georgia, Virginia, Texas, New Mexico and Arizona. Availability of technology is no longer a barrier to indirect potable reuse.[42] Reuse has proven to provide a highly competitive and cost-effective means of augmenting water supplies. "Indeed, in some situations, indirect potable reuse may be the next best alternative to make beneficial use of the resource."[43] The City of Aurora's Prairie Water Project illustrates how a major water utility in Colorado has legally, technically, and environmentally developed an indirect potable reuse project. The Prairie Waters Project is currently ahead of schedule and $100 million under budget.[44] Yet the DEIS only superficially considers alternatives involving indirect potable reuse, rejecting reuse as a reasonable means to meet the majority of Denver Water's predicted supply shortfall. The elimination of meaningful reuse alternatives from the DEIS is justified by underestimates of available unused reusable effluent and misstatement of the costs of such alternatives. FOOTNOTES: [42] H.P. Jansen, et al., Development of Indirect Potable Reuse in Impacted Areas of the United States, 55 WATER SCIENCE & TECH. 357 (2007). [43] U.S. EPA Guidelines for Water Reuse, 2004. [44] Denver Post,*

Comment Information	Comment	Comments and Responses
	Table 6.2 UPCO Modeled Alternative 1A - Wet Year Fraser River near Winter Park Total Streamflow (AF) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Total DEIS Avg* / 307 / 238 / 307 / 246 / 222 / 246 / 238 / 984 / 5,534 / 2,890 / 615 / 417 / 12,244 1952 / 246 / 243 / 246 / 246 / 230 / 246 / 479 / 496 / 10,132 / 615 / 615 / 417 / 14,230 1962 / 289 / 238 / 246 / 251 / 222 / 338 / 677 / 821 / 687 / 615 / 615 / 417 / 5,415 1983 / 246 / 238 / 246 / 295 / 235 / 276 / 255 / 517 / 12,913 / 3,131 / 682 / 417 / 19,451 1984 / 247 / 239 / 271 / 351 / 308 / 459 / 331 / 5,388 / 8,386 / 2,051 / 691 / 417 / 19,140 1986 / 264 / 239 / 246 / 248 / 224 / 272 / 455 / 663 / 3,193 / 658 / 615 / 417 / 7,494 Average / 267 / 239 / 260 / 273 / 240 / 306 / 406 / 1,478 / 6,811 / 1,660 / 639 / 417 / 12,996 Min / 246 / 238 / 246 / 246 / 222 / 246 / 238 / 496 / 687 / 615 / 615 / 417 / 5,415 Max / 307 / 243 / 307 / 351 / 308 / 459 / 677 / 5,388 / 12,913 / 3,131 / 691 / 417 / 19,451 Difference (Max,Avg) / 41 / 4 / 47 / 79 / 68 / 153 / 271 / 3,910 / 6,102 / 1,471 / 52 / 0 / 6,456 % Diff (Max,Avg) / 13% / 1% / 15% / 22% / 22% / 33% / 40% / 73% / 47% / 47% / 8% / 0% / 33% Difference (Max,Min) / 61 / 5 / 61 / 105 / 86 / 213 / 439 / 4,892 / 12,226 / 2,516 / 76 / 0 / 14,036 % Diff (Max,Min) / 20% / 2% / 20% / 30% / 28% / 46% / 65% / 91% / 95% / 80% / 11% / 0% / 72% UPCO Modeled Alternative 1A - Wet Year Fraser River near Winter Park Average Streamflow (CFS) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Average DEIS Avg* / 5 / 4 / 5 / 4 / 4 / 4 / 4 / 16 / 93 / 47 / 10 / 7 / 17 1952 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 8 / 171 / 10 / 10 / 7 / 20 1962 / 5 / 4 / 4 / 4 / 4 / 6 / 11 / 13 / 12 / 10 / 10 / 7 / 7 1983 / 4 / 4 / 4 / 5 / 4 / 4 / 4 / 8 / 217 / 51 / 11 / 7 / 27 1984 / 4 / 4 / 4 / 6 / 5 / 7 / 6 / 88 / 141 / 33 / 11 / 7 / 26 1986 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 11 / 54 / 11 / 10 / 7 / 10 Average / 4 / 4 / 4 / 5 / 4 / 5 / 7 / 26 / 119 / 23 / 10 / 7 / 18 Min / 4 / 4 / 4 / 4 / 4 / 4 / 4 / 8 / 12 / 10 / 10 / 7 / 7 Max / 5 / 4 / 4 / 6 / 5 / 7 / 11 / 88 / 217 / 51 / 11 / 7 / 27 Difference (Max,Avg) / 1 / 0 / 0 / 1 / 1 / 2 / 4 / 62 / 98 / 28 / 1 / 0 / 9 % Diff (Max,Avg) / 11% / 1% / 7% / 21% / 19% / 31% / 35% / 71% / 45% / 55% / 7% / 0% / 33% Difference (Max,Min) / 1 / 0 / 0 / 2 / 1 / 3 / 7 / 80 / 205 / 41 / 1 / 0 / 20 % Diff (Max,Min) / 15% / 2% / 9% / 30% / 25% / 46% / 62% / 91% / 95% / 80% / 11% / 0% / 72% Alternative 1a conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002) and include full build out, the preferred alternative for the Moffat expansion project, and Windy Gap Firming Project. *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations.	*Front Page, "Aurora Water Project Ahead of Schedule, Below Budget," March 15, 2010. Denver Water is required by federal law to maximize the reuse of Colorado River return flows so as to alleviate the need for additional diversions from the West Slope. The Blue River Decree mandates that Denver "undertake[] to exercise due diligence, within legal limitations and subject to economic feasibility," to "utilize such [transmountain] return flow by exchange or otherwise . . . so as to reduce or minimize the demands of [Denver] upon Blue River water."[45] The Colorado Supreme Court has relied on the Blue River Decree in holding that Denver has the right to reuse and make successive use of foreign waters and that it should do so "to the maximum extent feasible."[46] Denver Water is required to adopt reuse measures before constructing West Slope supply projects as long as such alternatives are "economically feasible;" reuse need not be the least expensive alternative. As a "trustee responsible for the protection of western slope interest,"[47] the United States is required to consider Denver's obligations pursuant to the Blue River Decree in making permitting decisions. As a result, the Corps has a heightened obligation to scrutinize Denver Water's current reuse practices and the potential for additional reuse. The DEIS omits any reference or discussion of the obligations imposed on Denver Water by the Blue River Decree. FOOTNOTES: [45] Decree in Consolidated Case Nos. 2782, 5016, and 5017, § 4(f) (D. Colo. Oct. 12, 1955) ("Blue River Decree"), ratified by Congress, Colorado River Storage Project Act of 1956, 43 U.S.C. § 620(j) and Senate Doc. No. 80, 75th Congress, 1st Session (1937). [46] City & County of Denver v. Fulton Irrigating Ditch Co., 506 P.2d 144, 148 (Colo. 1972). [47] United States v. Northern Colorado Water Conservancy District, 608 F.2d 422, 429 (10th Cir. 1979). Denver Water claims that there is insufficient reusable effluent to meet its predicted supply shortfalls. This position is unsubstantiated and requires additional analysis. The flaws inherent to PACSM, which have already been discussed, bring into question the estimates of*

Comment Information	Comment	Comments and Responses
	Table 6.3 **UPCO Modeled Current Conditions – Dry Year** **Fraser River near Winter Park Streamflow (AF)** 	Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
---	---	---	---	---	---	---	---	---	---	---	---	---	---
DEIS Avg*	246	238	246	246	222	246	238	492	476	492	492	357	3,991
1954	246	238	246	246	222	246	349	470	595	615	615	417	4,505
1955	246	238	246	246	222	245	376	561	595	615	615	417	4,621
1963	246	238	246	287	248	304	477	504	595	615	615	417	4,791
1977	246	238	246	246	222	247	378	538	644	615	615	417	4,651
1981	246	238	246	246	222	270	424	513	780	615	615	417	4,831
Average	246	238	246	254	227	262	401	517	642	615	615	417	4,680
Min	246	238	246	246	222	245	349	470	595	615	615	417	4,505
Max	246	238	246	287	248	304	477	561	780	615	615	417	4,831
Difference (Avg,Min)	0	0	0	8	5	18	52	47	47	0	0	0	175
% Diff (Avg,Min)	0%	0%	0%	3%	2%	7%	13%	9%	7%	0%	0%	0%	4%
Difference (Max,Min)	0	0	0	41	26	60	128	90	185	0	0	0	326
% Diff (Max,Min)	0%	0%	0%	14%	11%	20%	27%	16%	24%	0%	0%	0%	7% | **UPCO Modeled Current Conditions – Dry Year** **Fraser River near Winter Park Average Streamflow (CFS)** | Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
---	---	---	---	---	---	---	---	---	---	---	---	---	---
DEIS Avg*	4	4	4	4	4	4	4	8	8	8	8	6	6
1954	4	4	4	4	4	4	6	8	10	10	10	7	6
1955	4	4	4	4	4	4	6	9	10	10	10	7	6
1963	4	4	4	5	4	5	8	8	10	10	10	7	7
1977	4	4	4	4	4	4	6	9	11	10	10	7	6
1981	4	4	4	4	4	4	7	8	13	10	10	7	7
Average	4	4	4	4	4	4	7	8	11	10	10	7	6
Min	4	4	4	4	4	4	6	8	10	10	10	7	6
Max	4	4	4	5	4	5	8	9	13	10	10	7	7
Difference (Avg,Min)	0	0	0	0	0	0	1	1	1	0	0	0	0
% Diff (Avg,Min)	0%	0%	0%	3%	2%	7%	13%	9%	7%	0%	0%	0%	4%
Difference (Max,Min)	0	0	0	1	0	1	2	1	3	0	0	0	0
% Diff (Max,Min)	0%	0%	0%	14%	11%	20%	27%	16%	24%	0%	0%	0%	7%	 Modeled current conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002). *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations.	*available reusable effluent included in the DEIS. Contrary to Denver Water's estimate of average available reusable effluent of 7,600 acre-feet, Denver Water reported an average of 19,300 acre-feet of unused reusable effluent from 1998 to 2008.[48] During the drought of 2002, over 47,000 acre-feet of unused reusable effluent was available. When multiplied by a factor of 1.5, to account for the fact that reusable effluent can be reused multiple times, there is nearly 29,000 acre-feet of unused reusable effluent available on average, and as much as 70,000 acre-feet available in drought years. It is not clear whether DEIS Table 2-9 showing Denver Water's calculation of its unused reusable return flows includes "second generation" reuse. If the 1.5 multiplier was not included within Denver Water's estimates of available reusable flows, even Denver Water's own estimate of 7,600 acre-feet of reusable effluent would produce about 11,400 acre-feet of usable supplies. FOOTNOTE: [48] Denver Board of Water Commissioners, Colorado River Water Reports to U.S. Bureau of Reclamation, 1998 –2008. The DEIS also relies on average unused return flows rather than dry year return flows. A greater supply of reusable return flows are available in dry years when Denver Water makes larger diversions from the West Slope, and precisely when Denver Water has the greatest need. It is misleading to state, as does the DEIS, that the "average" unused return flows are 7,600 acre-feet when PACSM predicts up to 37,500 acre-feet of unused reusable effluent in a dry year.[49] The alternatives in the DEIS that include nonpotable reuse explicitly state that the advanced water treatment plants would only be used during dry years, approximately three out of every nine or ten years, precisely when available unused reusable return flows would be at their maximum. FOOTNOTE: [49] Moffat Project Collection System DEIS, Table 2-9, "Denver Water's Estimated Reusable Water." The DEIS relies on a capital cost estimate of $5.25 per gallon per day of treatment capacity for an advanced wastewater treatment plant (for example, a plant with a capacity to treat 10,000,000 gallons per day would*

Comment Information	Comment	Comments and Responses
	Table 6.4 **UPCO Modeled Alternative 1A - Dry Year** **Fraser River near Winter Park Streamflow (AF)** 	Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
---	---	---	---	---	---	---	---	---	---	---	---	---	---
DEIS Avg*	246	238	246	246	222	246	238	492	476	492	492	357	3,991
1954	246	238	246	246	222	246	350	470	595	615	615	417	4,505
1955	246	238	246	246	222	245	375	560	595	615	615	417	4,620
1963	246	238	246	286	248	303	476	504	595	615	615	417	4,788
1977	246	238	246	246	222	247	376	538	643	615	615	417	4,649
1981	246	238	246	246	222	270	422	513	780	615	615	417	4,830
Average	246	238	246	254	227	262	400	517	642	615	615	417	4,678
Min	246	238	246	246	222	245	350	470	595	615	615	417	4,505
Max	246	238	246	286	248	303	476	560	780	615	615	417	4,830
Difference (Avg.Min)	0	0	0	8	5	18	50	47	47	0	0	0	173
% Diff (Avg.Min)	0%	0%	0%	3%	2%	7%	13%	9%	7%	0%	0%	0%	4%
Difference (Max.Min)	0	0	0	40	26	59	126	90	185	0	0	0	325
% Diff (Max.Min)	0%	0%	0%	14%	11%	19%	26%	16%	24%	0%	0%	0%	7% | **UPCO Modeled Alternative 1A - Dry Year** **Fraser River near Winter Park Average Streamflow (CFS)** | Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
---	---	---	---	---	---	---	---	---	---	---	---	---	---
DEIS Avg*	4	4	4	4	4	4	4	8	8	8	8	6	6
1954	4	4	4	4	4	4	6	8	10	10	10	7	6
1955	4	4	4	4	4	4	6	9	10	10	10	7	6
1963	4	4	4	5	4	5	8	8	10	10	10	7	7
1977	4	4	4	4	4	4	6	9	11	10	10	7	6
1981	4	4	4	4	4	4	7	8	13	10	10	7	7
Average	4	4	4	4	4	4	7	8	11	10	10	7	6
Min	4	4	4	4	4	4	6	8	10	10	10	7	6
Max	4	4	4	5	4	5	8	9	13	10	10	7	7
Difference (Avg.Min)	0	0	0	0	0	0	1	1	1	0	0	0	0
% Diff (Avg.Min)	0%	0%	0%	3%	2%	7%	13%	9%	7%	0%	0%	0%	4%
Difference (Max.Min)	0	0	0	1	0	1	2	1	3	0	0	0	0
% Diff (Max.Min)	0%	0%	0%	14%	11%	19%	26%	10%	24%	0%	0%	0%	7%	 Alternative 1a conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002) and include full build out, the preferred alternative for the Moffat expansion project, and Windy Gap Firming Project. *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations.	*cost $52,500,000). Of that cost, $3.50 is attributed to treatment costs and $1.75 for concentrate disposal. The "Moffat Project Collection System Project EIS Denver Water Alternatives Screening Report" (URS 2007) recognizes that the unit cost of $3.50 for treatment is high compared to costs of constructed plants with similar treatment processes.[50] However, even according to this estimate, a plant with the capacity to treat 18,000 acre-feet of water per year would cost approximately $84 million. It is not clear, therefore, why such an option was rejected as more than five times more expensive than the preferred alternative,[51] which has an estimated total construction cost of $81.6 million. The cost breakdown shows that the treatment plants considered in the DEIS were designed to treat upwards of 49,000,000 gallons per day. If run 365 days per year, this capacity would be sufficient to treat almost 55,000 acre-feet of water per year. Given that Denver Water's own estimate of shortfall is only 18,000 acre-feet, there seems to be no basis for the considered alternatives to include a plant with such extensive excess capacity and corresponding additional costs. FOOTNOTES: [50] "Moffat Project Collection System Project EIS Denver Water Alternatives Screening Report" (URS 2007), Appendix C. [51] The cost screen, Screen 1C, eliminated alternatives that had a cost ratio as compared to the least expensive alternative greater than 5. The consideration of reuse alternatives also does not take into account the opportunity for cooperative action to fully utilize the available water treatment capacity. If the plant is to be used for approximately three years and allowed to sit idle for six, that unused capacity can be utilized by neighboring communities. The WISE Partnership is planned to operate in exactly this way, with South Metro utilizing the unused capacity of Aurora's water treatment plant in wet seasons and returning to their wells for drought supplies. If Denver Water is to reject reuse as an alternative to the Moffat Project based on cost, the public must be provided with more information about the bases for those cost estimates.*

Comment Information	Comment	Comments and Responses
	Table 7 **Comparison of Total Annual Volume and Frequency of Dry Years** **Fraser River at Winter Park** Total Annual Volume (acre-feet) Year / Actual Historical / UPCO PACSIM 3 Scenario 1947 / 21,878 / 11,653 1948 / 15,169 / 9,031 1949 / 21,836 / 9,129 1950 / 7,388 / 4,657 1951 / 11,525 / 5,788 1952 / 14,866 / 14,230 1953 / 6,355 / 5,051 1954 / 4,292 / 4,505 1955 / 5,014 / 4,620 1956 / 7,124 / 5,407 1957 / 31,634 / 6,576 1958 / 21,054 / 11,388 1959 / 8,457 / 5,337 1960 / 12,392 / 7,599 1961 / 8,083 / 4,549 1962 / 16,359 / 5,415 1963 / 4,661 / 4,788 1964 / 4,752 / 4,609 1965 / 12,293 / 5,415 1966 / 7,415 / 4,706 1967 / 8,809 / 4,767 1968 / 6,305 / 4,655 1969 / 18,656 / 12,074 1970 / 18,856 / 9,741 1971 / 23,107 / 10,655 1972 / 9,547 / 5,216 1973 / 21,551 / 9,209 1974 / 13,058 / 5,686 1975 / 11,366 / 4,905 1976 / 6,100 / 4,513 1977 / 5,192 / 4,649 1978 / 8,519 / 5,494 1979 / 13,049 / 8,749 1980 / 16,125 / 11,192 1981 / 4,901 / 4,830 1982 / 7,656 / 5,299 1983 / 31,136 / 19,451 1984 / 34,149 / 19,140 1985 / 9,240 / 10,237 1986 / 12,202 / 7,494 1987 / 10,924 / 7,155 1988 / 9,186 / 7,159 1989 / 5,812 / 4,871 1990 / 6,049 / 4,705 1991 / 9,976 / 6,835 Average / 12,534 / 7,403 Number of years less than or equal to historical 25th percentile / 12 / 27 Actual Historical 25th Percentile / 7,124 **Notes:** Actual historical total monthly streamflow volumes are based upon Fraser River at Winter Park stream gage data available from the Colorado Division of Water Resources CDSS database. UPCO PACSIM 3 Scenario total monthly streamflow volumes are based upon data from the UPCO PACSIM Data Display Tool (Hydrosphere, 1/6/2002). The PACSIM Scenario includes full build-out and incorporates the Moffat Expansion Project and Windy Gap Firming Project. Shaded cells represent years in which the total annual streamflow is less than or equal to the actual historical 25th percentile of annual flows (7,124 ac-ft).	*Particularly when the costs to the public of environmental impacts that will result from the Moffat Project are considered, the cost of indirect potable reuse seems favorable in comparison. Indeed, communities throughout the country have concluded that indirect potable reuse is a preferable alternative to the development of new water supplies. Aurora's Prairie Water Project is just such an example. If Aurora, the second largest water provider in the Denver Metro area has determined that indirect potable reuse is an economically and environmentally sound water source, Denver Water cannot reject such an alternative without substantial justification. The Blue River Decree mandates that Denver Water adopt such measures if economically feasible.* **Response #767-36:** The partnership between Denver Water, Aurora, and the South Metro Water Supply Authority would make use of excess reusable water as it becomes available from time to time. When available, and on a space available basis, the excess reusable water would be pumped from the lower South Platte River (north of Denver) to water users upstream (south of Denver). The WISE project makes use of the same reusable water considered for Alternatives 8a, 10a, and other alternatives considered in the DEIS. While the WISE project could provide Denver Water some firm yield, it does not deliver water to where Denver Water needs the extra supply (north end). Alternatives 8a and 10a did deliver this water to north end and are considered practicable alternatives in this EIS. Denver Water has "up to" 40,000 AF of excess reusable effluent. In some years, Denver Water has 0 AF of excess reusable effluent. On average, Denver Water has 8,000 AF on average of excess reusable effluent – this is the amount used when developing Alternatives 8a and 10a for the DEIS.

Comment Information	Comment	Comments and Responses
	Table 8 **Comparison of Maximum Daily Actual Historical Streamflow and Percent Reduction Due to Moffat Expansion (Alternative 1a and No Action)** (1) DEIS Maximum Daily Streamflow Reduction-Alternative 1a (cfs) (2) DEIS Maximum Daily Streamflow Reduction-No Action Alternative (cfs) (3) Actual Historical Maximum Daily Streamflow (Post-Moffat) (cfs) (4) Actual Historical Date of Maximum Streamflow (5) Percent Maximum Flow Reduction-Alternative 1a (6) Percent Maximum Flow Reduction-No Action-Alternative Stream Gage: Fraser River at Winter Park; (1) 330; (2) 280; (3) 440; (4) 7/9/1983; (5) 75%; (6) 64% Stream Gage: Fraser River at Granby; (1) 729; (2) 686; (3) 2,081; (4) 6/8/1997; (5) 35%; (6) 33% Stream Gage: Vasquez Creek at Winter Park; (1) 325; (2) 200; (3) 417; (4) 6/25/1983; (5) 78%; (6) 48% Stream Gage: St. Louis Creek near Fraser; (1) 203; (2) 201; (3) 418; (4) 6/10/1995; (5) 48%; (6) 48% Stream Gage: Williams Fork River below Steelman Creek; (1) 177; (2) 167; (3) 395; (4) 7/12/1995; (5) 45%; (6) 42% Stream Gage: Colorado River near Kremmling; (1) 3,319; (2) 3,419; (3) 12,700; (4) 5/26/1984; (5) 26%; (6) 27% **Notes:** (1) and (2) are based upon Tables in DEIS Appendix H-6. In the DEIS, maximum daily flow reductions are reported for the May through July time period only. (3) and (4) The actual historical maximum daily flow is based upon CO Div. of Water Resources database records at the gages listed after 1936 (Moffat Project). (5) is equal to (1) divided by (3) (6) is equal to (2) divided by (3) This table reflects a comparison between actual historical peak flows and the maximum peak flow reduction between the full use existing scenario and either Alternative 1a or the No Action Alternative. It does not account for reductions in peak flow from the modeled "Current" scenario to the "Full Use Existing Scenario." Therefore, the percent reductions shown here are potentially less than the peak flow reductions that the stream system may actually experience between the actual historical peak flows and the implementation of one of the alternatives. **Approximate Peak Daily Streamflow Under Actual Historical, No Action, and Alternative 1a Scenarios** Actual Historical; No Action; Alternative 1a Peak Daily Streamflow (cfs) Fraser River at Winter Park: 440, 160, 110 Vasquez Creek at Winter Park: 417, 217, 92 St. Louis Creek near Fraser: 418, 217, 217 Williams Fork River below Steelman Creek: 395, 228, 218 Fraser River at Granby: 2,081, 1,395, 1,352 Colorado River near Kremmling: 12,700, 9,281, 9,381 **Note:** Approximate peak daily streamflows under the No Action and Alternative 1a scenarios were estimated by subtracting the peak streamflow reduction shown in the table above from the actual historical peak streamflow.	There is currently insufficient information available to incorporate the WISE Project in Denver Water's PACSM because a variety of possible scenarios are being considered and evaluated by the Project proponents. A qualitative evaluation of this Project was added to FEIS Section 4.6.1, which describes the purpose of the Project, the participants, and generally how it would operate. While WISE would have participation from several water providers, WISE would use, in part the same water (unused Denver Water reusable effluent) as Moffat Project Alternatives 8a and 10a and various aquifers in the regions to store water similar to Alternative 10a. All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's system supply and reduces the amount of water diverted from other components of the system. The main sources of reusable water in Denver Water's collection system are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek system (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Bi-City Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,500

Comment Information	Comment	Comments and Responses
	Table 9 Fraser River at Winter Park Average Monthly Streamflow Number of Months at or Below the USFS Bypass Flow (45 Year Study Period, 1947-1991) |	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	% Months
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Actual Historical	10	8	6	6	10	5	0	0	3	13	27	27	115	21%
UPCO PACSM 3 Scenario	31	35	37	20	20	6	0	0	0	31	41	43	264	49%
Difference	21	27	31	14	10	1	0	0	-3	18	14	16	149	28% | Notes: Actual historical total monthly streamflow volumes are based upon Fraser River at Winter Park streamgage data available from CDSS database. UPCO PACSM 3 Scenario total monthly streamflow volumes are based upon data from the UPCO PACSM Data Display Tool (Hydrosphere, 1/3/2002). The PACSM3 Scenario includes full build-out and incorporates the Moffat Expansion Project and Windy Gap Firming Project. Difference is equal to UPCO PACSM 3 Scenario less Actual Historical number of months. Positive values indicate that more months are at or below the bypass flow in the UPCO PACSM 3 Scenario. Negative values indicate that there are more months at or below the bypass flow in the actual historical record. The total represents the total number of months within the 45 year study period that are at or below the USFS bypass flows. The USFS bypass flow is equal to 10 cfs from May 15 to September 15 and 4 cfs from September 16 to May 14.	AF/yr. Refer to FEIS Section 1.3.1 (Subheading Non-Potable Recycling Facility). Denver Water is in the process of completing a recycling project that will use reusable supplies to meet an annual demand of 17,500 AF. Denver Water is also in the process of constructing 30,000 AF of gravel pit reservoir storage downstream of Denver. The storage facilities will be used to manage reusable supplies by storing excess reusable supplies in time of surplus, and releasing the stored reusable supplies at times of shortage. The gravel pits will be used for the following purposes: 1. Perform exchanges to upstream facilities. In an exchange, reusable water is added to a stream at a downstream location to enable diversion of a like amount of water at an upstream location. 2. Deliver the reusable water to the Recycling Plant, treat the water, and distribute it for non-potable uses. The recycling plant requires gravel pit storage to supply reusable water to the Recycle Plant, via exchange, when reusable water is not available at Metro or Bi-City. 3. Deliver an annual supply of 5,000 AF of reusable water to South Adams County Water and Sanitation District (per agreements). 4. Use reusable water to augment raw water systems in the metro area (e.g., augment the wells used to supply water to Denver parks). The reusable water needed to support these projects was included in the PACSM simulations and therefore less reusable water is available for a new project. These projects were not on-line in from 1998 to 2008 as noted in the comment, but once these projects are completed, the average annual available unused reusable effluent is estimated to be approximately

Comment Information	Comment	Comments and Responses
	Table 10 **Fraser River at Winter Park** **Comparison of Years that Satisfy the Grand County Stream Management Plan Environmental Flushing Flows** | Year	Actual Historical	Modeled Future-Moffat Alternative 1a
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1947	1	1
1948	1	1
1949	1	1
1950		
1951	1	
1952	1	1
1953		
1954		
1955		
1956		
1957	1	
1958	1	1
1959		
1960	1	1
1961		
1962		
1963		
1964		
1965	1	
1966		
1967		
1968		
1969	1	1
1970	1	
1971	1	1
1972		
1973	1	1
1974	1	
1975		
1976		
1977		
1978		
1979	1	1
1980	1	1
1981		
1982		
1983	1	1
1984	1	1
1985		1
1986	1	1
1987		
1988		
1989		
1990		
1991	1	1
Total	20	16
Percentage of Years Flushing Flow Recommendation is Met	44%	36%
Longest Duration Between Flushing Flows (number of years)	5	9 | **Notes:** Actual historical data is based upon streamflows measured at the Fraser River at Winter Park stream gage. Modeled Full Use Existing is based upon UPCO PACSM Data Tool (January 2, 2002) and assumes full use of Denver Water's existing system. Future modeled data is based upon UPCO PACSM Data Tool (January 2002) and assumes full build-out on the East and West Slope, the Moffat Expansion Project preferred alternative, and the Windy Gap Firming Project. Maximum flushing flow recommendations are based upon recommendations for Reach F3 in the Grand County Stream Management Plan and are equal to 175 cfs for 3 consecutive days, 1 in 2 years. A value of 1 indicates that the flushing flow recommendation was satisfied in that year. All flushing flows occur from May-July.	7,600 AF. This is an example of why it is inappropriate to simply rely on historical values to draw conclusions. As shown in the DEIS Table 2-9, the estimated 7,600 AF of average annual unused reusable water ranges from to 0 AF some years, to as high as approximately 37,500 AF in one year. The highest year of unused return flows does occur in a dry year, but many other dry years and periods have less than the 6,700 AF average. Project alternatives that included 5,000 AF of yield using the reusable return flows were analyzed. Alternative that included more than 5,000 AF would have been even more expensive on a cost per acre-feet basis. Also note that with PACSM, Denver Water's unused reusable return flows are used and reused to extinction. ***Comment #767-44*** *(ID 5231)**:*** *Environmental Impacts and Mitigation. The Moffat Project will have significant impacts on water, water quality, environmental resources, and local economies throughout the Colorado River Basin, including impacts to the Blue River, Dillon Reservoir, and Summit County. All of the 2030 water supply scenarios modeled in the DEIS show increased diversions through the Roberts Tunnel as compared to the 2016 "Full Use" scenario, resulting in corresponding reductions in water levels in Dillon Reservoir and flows in the Blue River. Under the preferred alternative, increased diversions through the Roberts Tunnel would be concentrated during the months of May through September which are the prime recreational seasons for Dillon Reservoir and the Blue River. Reservoir water levels and streamflows will be expected to decline during these periods in most years of the study period with construction of the Project. Reductions in flows in the Blue River will result in reductions in the wetted land adjacent to the River between Dillon and Green Mountain Reservoir, destroying riparian habitat. There will also be*

Comment Information	Comment	Comments and Responses
	Table 11 **Summary of Colorado River Streamflow and Diversions** **Colorado River at Hot Sulphur Springs** Average Annual Flow (acre-feet) 	Approx Avg Annual Flow Volume	Remaining Avg Annual Flow	Percent of Native Flow Volume Remaining	Notes
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Native Flow	**540,000**		**100%**	Colorado River flow at Hot Sulphur Springs from 1904-1938 based upon CDSS records (pre-Moffat, adjusted for approximate Grand River Ditch diversions)
Grand River Ditch Diversions	18,500	521,500	97%	Based upon CDSS recorded annual diversions from 1975-2007
Moffat Diversions	51,100	470,400	87%	Based upon Denver Water diversion records at the East Portal from 1975-2005, less 5,100 AFy avg diversions (1975-2005) from Gumlick Tunnel (DEIS page 3-31)
CBT Diversions	231,700	238,700	44%	From WGFP EIS Table 18 (1950-1996)
CBT Evaporation	13,500	225,200	42%	From Moffat DEIS Table 3.1-14, page 3-39 (1985-2007)
Windy Gap Diversions	11,500	213,700	40%	From WGFP EIS Table 18 (1950-1996)
Grand County Uses	1,200	212,500	39%	Based on Grand County demands (3,100 af, UFCO 2003) with assumed 60% return flows
Current Flow	**167,500**		**31%**	Based upon USGS streamgage records (1985-1994) and correlated streamflow using WGF gage from (1925-2005). Flow measured @ over less than calculated remaining flows
WGFP Depletions	23,300	144,200	27%	Based upon information provided by HCWCD meeting 8/27/09
Moffat Expansion Project Diversions	14,250	129,950	24%	From DEIS Table E-7.1 Total Moffat less Gumlick Tunnel imports less current diversions shown above
Projected Future Flow	**129,950**		**24%**	Equal to the current flow less additional projected diversions.		*permanent adverse impacts to boating opportunities on the Blue River by decreasing the number of days with minimum and optimal flows for kayaking and rafting. Because of deficiencies in PACSM for purposes of modeling the impacts to flows on the West Slope, which deficiencies are outlined in the Joint Rebuttal Report and in the Memo by Bishop Brogden Associates, Inc., Appendix B, the Project may have adverse impacts significantly greater than those explicitly acknowledged in the DEIS. A more detailed analysis of the environmental impacts to Summit County is provided in the Joint Rebuttal Report to which Summit County is a signatory.* **Response #767-44:** As Denver Water's demand grows in the future, Denver Water would divert additional water from the Blue River via its Roberts Tunnel Collection System. The hydrologic effects of these diversions, including flow reductions in the Blue River and fluctuations of lake levels in Dillon Reservoir, were evaluated and are presented in DEIS Chapter 4, in Sections 4.1.1.2 and 4.1.1.1, respectively. A discussion of fluctuating reservoir levels and their impacts on the usability of boat ramps at Dillon Reservoir was provided in DEIS Section 4.13.6.1. This analysis was expanded in FEIS Section 5.15 to reflect the number of days the boat ramps at Dillon Reservoir would be inoperable due to low water levels. This same analysis was repeated for Green Mountain Reservoir in FEIS Section 5.15. Impacts to boating and fishing along the Blue River between Dillon Reservoir and Green Mountain Reservoir were discussed in DEIS Section 4.13. Further analysis of potential impacts to the segment of the Blue River below Green Mountain Reservoir to the confluence of the Colorado River has been included in FEIS Section 5.15. Regarding the deficiencies in PACSM as outlined in the Joint Rebuttal Report and the Memo by Bishop Brogden, please refer to the responses to Comment IDs 5199, 5216, 5217, 5218,

Comment Information	Comment	Comments and Responses
	Table 12 **Summary of Blue River Streamflow and Diversions** **Blue River below Dillon Reservoir** Average Annual Flow (acre-feet) 	Approx Avg Annual Flow Volume	Remaining Avg Annual Flow	Percent of Native Flow Volume Remaining	Notes
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Native Flow	**233,563**		**100%**	Based upon a correlation of Blue River at Dillon, Snake River and Ten Mile Creek gage data with Blue River below Dillon gage data. Native flow refers to the time period before Dillon Reservoir and the Con-Hoosier Tunnel (1911-1950).
Con-Hoosier Tunnel	12,000	221,563	95%	DEIS page 3-44
Vidler, Boreas Diversions	500	221,063		Approximate average diversions based upon Colorado Division of Water Resources CDSS database
Roberts Tunnel	69,676	151,387	65%	DEIS Table H-7.1
Dillon Evaporation	5,847	145,540	62%	DEIS Table H-8.1
Summit County Uses	2,500	143,040	61%	Based on Summit County above Dillon Reservoir demands (6,250 af, UBCO 2008) with assumed 60% return flows
Current Flow	**124,392**		**53%**	Modeled Current Dillon Reservoir outflow, based upon DEIS Table 7.1. Modeled outflow differs from recent actual measured streamflow at the Blue River below Dillon stream gage (approx. 143,500 ac-ft, 1988-2008)
Full Use Existing Depletions	27,724	96,668	41%	Equal to the difference between modeled current and modeled full use existing Dillon Reservoir outflows; based upon DEIS Table 7.1
Buildout Depletions	4,787	91,881	39%	Equal to the difference between modeled full use existing and Alternatives 1a Dillon Reservoir outflows, based upon DEIS Table 7.1
Projected Future Flow	**91,881**		**39%**	Equal to the current flow less additional projected diversions | BBA 3/17/2010	5220, 5221, and 5227. ***Comment #767-43*** *(ID 5230)**:*** *The DEIS does not adequately address cumulative impacts of the Project, because it does not consider the total effect of diversions by Denver Water from the West Slope and the past, present, and future anticipated diversions by West Slope entities. An EIS must include "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[52] One example is the DEIS failure to quantitatively consider the impact of the Shoshone Agreement between Denver Water and Excel Energy which will reduce the call of the Shoshone Power Plant during dry years. Although the DEIS admits that such a reduction in the call is likely to occur once every six or seven years, this factor was not included in PACSM and therefore is not reflected in the environmental impact analyses in the DEIS. The reduction in the call would be expected to impact flows upstream of the Power Plant in years in which limited or no replacement water is available. FOOTNOTE: [52] 40 C.F.R. § 1508.7 (1991).* **Response #767-43:** The Shoshone Agreement does not provide additional water to the Moffat Collection System since available storage capacity in Gross Reservoir would not be a limiting factor in dry years when the Shoshone Call reduction would be invoked and Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. It is highly unlikely that the Shoshone Agreement would affect stream flows in a manner that translate

Comment Information	Comment	Comments and Responses
	MT Historic EAST PORTAL MOFFAT TUNNEL (acre-feet) graph label: Moffat Tunnel Source: Denver Water Page 1	into additional shortages in Grand and Summit counties in any given or subsequent year for the following reasons: 1. The 2006 Shoshone Agreement does not increase the supply to the Moffat System because Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat System. Therefore, there would be no change in stream flows in the Fraser River Basin due to this agreement. 2. Any additional exchanges from Williams Fork Reservoir to Dillon Reservoir and Roberts Tunnel would occur when the Shoshone Call is on and calling out all junior upstream water rights, including Roberts Tunnel and Dillon Reservoir. During this time any diversions at Dillon Reservoir would be fully replaced, resulting in no effect on stream flows below the point of replacement. 3. If the Shoshone Call reduction results in additional storage at reservoirs such as Dillon, Green Mountain, Williams Fork, and Wolford Mountain, the subsequent demand for water under those facilities' respective water rights is reduced. 4. Upstream junior in-basin water rights would benefit when the Shoshone Call is reduced because they could divert and/or Green Mountain and Wolford Mountain reservoirs gain water supplies, which are used for West Slope purposes. 5. Shortages in Summit County are typically the result of physical water shortages and minimum in-stream flows upstream of Dillon Reservoir, as opposed to Denver Water's operations. See revisions to DEIS Section 5.3.1 under the subheading Relaxation of Xcel Energy's Shoshone Call.

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1936	0	0	0	0	0	4,532	3,754	3,184	1,190	0	0	0	12,670
1937	0	0	0	0	2,058	11,348	6,540	1,229	0	0	0	0	21,165
1938	0	0	0	149	5,928	25,782	9,885	3,400	808	1,228	0	0	44,736
1939	0	0	0	0	8,674	12,584	4,926	2,242	1,418	1,079	402	0	31,304
1940	0	0	0	246	6,162	12,274	5,345	2,224	1,810	972	0	0	28,158
1941	0	0	0	0	9,399	14,864	7,265	3,408	1,900	1,499	0	0	37,022
1942	0	0	0	0	0	0	5,350	3,064	1,524	884	0	0	10,822
1943	0	0	0	479	6,015	12,868	7,016	3,729	1,728	1,224	24	0	32,875
1944	0	0	0	0	0	4,974	7,587	2,539	1,138	992	168	0	16,494
1945	0	0	0	0	3,865	12,454	9,875	6,382	2,608	1,212	0	0	37,374
1946	0	0	0	1,422	5,552	13,930	8,058	2,956	1,856	570	0	0	32,214
1947	0	0	0	0	6,082	2,616	5,894	5,402	2,960	2,390	290	0	25,314
1948	0	0	0	0	8,285	7,520	5,576	3,256	1,704	1,128	0	0	25,776
1949	0	0	0	118	5,884	6,240	6,500	3,442	1,820	1,328	0	0	25,108
1950	0	0	0	0	4,223	16,076	4,896	1,954	1,350	928	178	0	29,584
1951	0	0	0	0	6,060	9,930	11,732	4,016	1,354	1,656	60	0	34,442
1952	0	0	0	0	3,108	11,514	8,028	4,140	2,122	1,338	288	0	31,534
1953	0	0	0	0	4,112	18,196	6,716	3,198	1,460	1,262	214	0	35,086
1954	0	0	0	190	5,834	5,588	3,144	1,888	1,306	1,456	1,026	340	20,884
1955	0	0	0	252	6,784	14,036	6,808	4,718	1,986	1,286	70	0	36,900
1956	0	0	0	0	17,586	24,630	4,330	2,986	1,650	1,268	0	0	53,030
1957	0	0	0	248	3,862	6,930	26,322	11,038	4,080	80	0	0	47,560
1958	0	0	0	0	0	3,114	6,078	2,700	1,862	1,402	586	0	15,742
1959	0	0	0	242	7,176	29,852	11,326	5,824	3,092	3,424	1,268	870	62,886
1960	712	608	556	1,366	11,126	26,080	10,248	4,458	2,886	1,184	572	906	54,492
1961	802	548	610	948	9,672	20,690	9,352	5,444	5,118	558	0	0	53,500
1962	390	794	784	1,570	13,248	18,904	13,308	6,784	3,430	2,812	1,686	1,352	64,794
1963	886	989	756	1,814	10,992	12,540	3,938	4,522	4,620	2,572	1,812	1,268	45,672
1964	1,154	938	854	960	13,098	24,706	13,582	4,764	3,300	1,946	1,432	1,428	64,944
1965	1,188	876	852	958	8,716	28,740	23,070	6,090	4,828	554	784	904	75,828
1966	574	0	346	1,056	13,158	17,544	7,098	3,490	2,556	2,086	1,662	1,202	50,848
1967	1,088	948	968	1,638	10,814	23,169	2,992	4,080	2,570	1,914	1,788	1,264	52,201
1968	978	798	778	998	3,046	30,964	15,776	5,748	3,148	2,350	2,038	1,592	68,172
1969	1,332	1,052	1,140	2,604	6,274	460	9,300	6,162	3,378	3,140	2,940	1,222	36,224
1970	1,409	1,088	1,018	996	992	10,984	11,754	7,698	2,796	2,524	2,304	1,574	44,076
1971	1,152	886	816	1,928	1,610	7,488	11,192	5,418	3,100	2,314	1,780	1,214	38,596
1972	852	696	548	1,174	10,914	30,736	7,022	3,122	2,308	1,864	1,578	1,052	61,468
1973	786	512	538	468	3,856	9,250	10,316	4,280	2,030	1,914	1,230	918	35,844
1974	524	516	498	964	17,094	23,688	12,758	5,198	2,472	2,008	1,212	984	68,420
1975	582	478	414	324	5,418	28,062	12,478	5,188	3,128	2,804	2,112	1,072	61,424
1976	802	600	620	676	8,898	25,288	17,416	5,376	3,656	3,804	1,514	906	63,624
1977	542	410	374	1,234	11,672	19,370	8,726	3,268	1,546	3,132	1,312	1,686	48,668
1978	752	636	532	1,350	10,468	37,850	17,310	6,340	2,580	3,054	738	890	81,186
1979	486	320	382	600	9,914	15,048	15,320	7,060	3,568	2,678	994	780	57,054
1980	574	486	456	594	3,034	9,474	11,944	5,368	3,386	902	898	746	37,714
1981	548	310	454	1,600	7,028	27,882	8,714	2,700	3,328	1,516	1,340	896	56,316
1982	662	618	548	858	5,810	37,554	20,642	10,538	5,248	4,446	1,752	1,388	90,766
1983	968	758	734	662	890	0	6,384	12,424	6,338	4,484	2,004	1,446	37,592
1984	1,038	760	648	686	1,152	7,668	15,766	10,924	4,622	5,418	2,586	1,870	53,500
1985	1,288	920	818	1,060	17,472	18,430	12,992	7,094	4,784	5,002	2,524	1,382	74,574
1986	1,090	820	896	1,926	14,988	28,448	14,532	7,618	5,392	4,424	2,226	1,646	78,100
1987	1,260	630	660	1,044	11,814	8,994	5,936	3,518	2,944	3,080	1,462	1,080	43,622
1988	926	620	590	1,354	13,448	34,204	10,744	4,382	3,866	3,448	1,348	1,086	78,016
1989	850	718	785	2,514	14,942	25,526	9,658	5,628	2,374	1,598	1,214	842	68,603
1990	716	568	544	1,280	5,872	35,720	9,576	4,968	3,242	2,548	1,318	1,150	70,528
1991	960	566	488	592	15,750	25,328	11,850	5,972	586	820	1,116	948	61,794
1992	716	430	442	1,330	17,470	11,820	7,568	5,296	2,172	114	1,082	358	48,848
1993	8	0	0	0	3,988	11,710	10,340	5,732	1,498	1,358	1,268	714	36,650
1994	508	352	370	1,288	14,740	13,150	5,192	3,482	1,274	1,534	338	450	43,654
1995	284	242	252	280	3,100	2,558	3,460	7,980	4,110	2,126	518	524	23,452
1996	416	338	266	694	9,238	20,352	11,170	4,332	1,778	2,934	1,730	1,204	54,332
1997	780	466	458	644	15,580	5,238	12,794	8,720	3,082	1,760	1,290	1,220	48,848
1998	740	484	416	686	692	7,448	12,110	9,910	3,940	2,974	1,332	784	38,104
1999	554	392	416	448	8,250	8,692	10,950	2,882	1,802	702	794	570	35,962
2000	358	296	328	762	18,438	16,340	7,496	3,454	4,648	3,602	1,678	1,298	53,372
2001	808	616	568	1,192	17,814	25,438	9,992	3,788	3,974	3,916	1,412	938	68,354
2002	698	422	400	1,696	7,904	10,882	2,756	2,152	3,042	1,476	924	748	33,976
2003	576	438	476	790	12,158	27,790	15,270	6,148	8,194	3,492	1,960	1,282	78,180
2004	858	690	948	3,048	13,764	18,838	8,458	3,834	3,854	4,838	2,234	970	62,484
2005	638	432	490	1,088	14,826	10,208	12,690	5,718	4,312	4,122	2,092	1,470	58,180
2006	964	656	680	1,522	24,356	31,354	10,092	3,824	3,918	2,242	1,386	1,092	81,692
2007	774	498	626	11,558	10,014	7,268	3,626	3,396	3,684				
1936-06 avg	516	380	398	805	8,458	16,196	9,475	4,804	2,845	2,042	1,036	718	47,705
1936-06 min	0	0	0	0	0	0	2,460	1,229	0	0	0	0	10,822
1936-06 max	1,409	1,098	1,140	3,048	24,356	37,930	26,076	12,424	8,036	6,418	2,686	1,870	90,766

Comment Information	Comment	Comments and Responses
	JONES PASS TUNNEL (aka AUGUST P. GUMLICK TUNNEL) DIVERSIONS (THOUSANDS OF ACRE FEET)	Additionally, the Corps evaluates reasonable and foreseeable actions in FEIS Section 4.6.1. At this time, the Corps does not have a compelling reason to believe that the existing Shoshone water right will change. ***Comment #767-42*** *(ID 5229)**:*** *The DEIS concludes that there will be minimal or no environmental impacts to Summit County, and therefore, does not propose mitigation terms. Because the DEIS relies on the conclusion that there will be no impacts, an appropriate condition for any permit issued for the Project is that any environmental impacts or change in the assumptions upon which the environmental impact analyses in the DEIS were based, must be mitigated. Such a permit term would require monitoring by Denver Water to identify, track, and address or mitigate the environmental impacts. If the Project does result in reductions in flows, modification of water treatment plant permits, impacts to water quality, temperature, fisheries, or other adverse effects, then Denver Water should be accountable for those effects as it would have been had those impacts been documented in the DEIS. For example, the DEIS assumes that Dillon Reservoir outflows shall remain at or above 50 c.f.s., and evaluates environmental impacts based on this assumption. Summit County believes that an appropriate permit term would require Denver Water to maintain a 50 c.f.s. outflow, or to provide other mitigation should flows on the Blue River fall below 50 c.f.s. Likewise, the DEIS assumes that levels in Dillon Reservoir will not drop below certain minimum volumes. Denver Water should be prohibited from dropping levels below these volumes, or be required to engage in mitigation if further releases or pumping from Dillon Reservoir is absolutely necessary. Such permit terms would only hold Denver Water to the assumptions pursuant to which the environmental*

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1940	0.000	0.000	0.000	0.000	1.860	5.622	1.754	0.280	0.000	0.000	0.000	0.000	9.516
1941	0.000	0.000	0.000	0.000	1.432	3.676	2.100	0.966	0.130	0.000	0.000	0.000	8.304
1942	0.000	0.000	0.000	0.000	0.000	0.000	0.684	0.806	0.180	0.000	0.000	0.000	1.670
1943	0.000	0.000	0.000	0.000	0.000	0.000	2.394	1.310	0.428	0.000	0.000	0.000	4.132
1944	0.000	0.000	0.000	0.000	0.000	0.000	2.926	0.892	0.204	0.000	0.000	0.000	4.022
1945	0.000	0.000	0.000	0.000	0.000	2.294	5.602	2.586	0.638	0.000	0.000	0.000	11.120
1946	0.000	0.000	0.000	0.000	1.116	5.956	2.824	0.846	0.334	0.000	0.000	0.000	11.076
1947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.012	0.092	0.000	0.000	0.000	2.104
1948	0.000	0.000	0.000	0.000	0.000	0.000	1.148	0.764	0.126	0.000	0.000	0.000	2.038
1949	0.000	0.000	0.000	0.000	0.000	0.470	0.026	1.126	0.290	0.000	0.000	0.000	1.912
1950	0.000	0.000	0.000	0.000	0.294	5.380	2.664	0.628	0.058	0.000	0.000	0.000	9.024
1951	0.000	0.000	0.000	0.000	1.122	2.866	5.380	1.570	0.258	0.000	0.000	0.000	11.196
1952	0.000	0.000	0.000	0.000	0.000	0.730	3.676	1.630	0.780	0.098	0.000	0.000	6.914
1953	0.000	0.000	0.000	0.000	0.000	2.572	2.968	1.452	0.394	0.000	0.000	0.000	7.386
1954	0.000	0.000	0.000	0.000	2.404	2.444	0.254	0.434	0.000	0.000	0.000	0.000	5.536
1955	0.000	0.000	0.000	0.000	1.548	4.798	1.946	1.610	0.632	0.336	0.000	0.000	10.870
1956	0.000	0.000	0.000	0.000	3.014	3.722	1.330	0.668	0.000	0.000	0.000	0.000	8.734
1957	0.000	0.000	0.000	0.000	0.000	0.000	4.602	0.034	0.000	0.000	0.000	0.000	4.636
1958	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1959	0.000	0.000	0.000	0.000	0.000	0.000	0.076	0.698	0.308	0.338	0.048	0.000	1.468
1960	0.000	0.000	0.000	0.174	1.512	0.258	0.000	0.258	0.342	0.114	0.088	0.182	2.928
1961	0.104	0.056	0.062	0.080	1.184	0.210	1.504	1.050	0.064	0.000	0.000	0.000	4.314
1962	0.000	0.000	0.000	0.000	0.000	0.000	0.468	0.812	0.348	0.230	0.062	0.068	1.988
1963	0.066	0.062	0.062	0.194	1.238	2.592	0.000	0.494	0.572	0.280	0.172	0.108	5.840
1964	0.076	0.058	0.062	0.066	1.642	4.762	1.498	0.922	0.280	0.214	0.128	0.120	9.828
1965	0.064	0.000	0.000	0.000	0.496	0.726	2.752	0.512	0.612	0.000	0.000	0.000	5.162
1966	0.000	0.000	0.022	0.306	2.014	2.950	1.082	0.640	0.408	0.298	0.190	0.140	8.050
1967	0.078	0.072	0.062	0.120	1.298	0.984	0.120	0.832	0.514	0.348	0.024	0.000	4.452
1968	0.000	0.000	0.000	0.000	0.000	0.500	3.382	1.190	0.446	0.130	0.218	0.154	6.020
1969	0.124	0.102	0.124	0.238	0.252	0.000	0.000	1.308	0.586	0.348	0.254	0.166	3.502
1970	0.116	0.010	0.000	0.000	0.000	0.000	0.000	0.752	0.428	0.332	0.284	0.210	2.112
1971	0.132	0.058	0.000	0.000	0.000	0.000	0.000	1.052	0.624	0.328	0.226	0.130	2.550
1972	0.010	0.000	0.000	0.000	1.930	2.222	0.942	0.722	0.534	0.274	0.220	0.120	6.574
1973	0.100	0.086	0.104	0.074	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.390
1974	0.000	0.000	0.000	0.000	0.940	0.062	1.446	0.906	0.358	0.258	0.226	0.198	4.394
1975	0.098	0.092	0.104	0.132	0.730	2.032	0.124	1.552	0.532	0.194	0.190	0.184	5.964
1976	0.188	0.110	0.120	0.208	1.372	5.750	2.752	1.340	0.514	0.524	0.290	0.232	13.400
1977	0.168	0.072	0.062	0.140	1.572	3.626	0.858	0.546	0.208	0.314	0.138	0.076	7.780
1978	0.062	0.056	0.062	0.110	1.022	1.486	1.152	0.442	0.006	0.000	0.028	0.010	4.436
1979	0.058	0.058	0.062	0.108	1.246	0.412	2.422	1.304	0.342	0.194	0.136	0.066	6.408
1980	0.056	0.056	0.052	0.054	0.004	0.000	0.442	0.406	0.000	0.000	0.118	0.122	1.310
1981	0.030	0.034	0.062	0.178	0.926	4.894	1.960	0.578	0.416	0.168	0.116	0.062	9.424
1982	0.062	0.068	0.110	0.126	0.686	4.352	0.622	1.214	0.696	0.346	0.240	0.126	8.648
1983	0.104	0.094	0.114	0.102	0.000	0.000	0.000	0.876	0.644	0.348	0.226	0.152	2.660
1984	0.186	0.106	0.104	0.034	0.000	0.000	0.000	1.250	0.286	0.288	0.324	0.236	2.814
1985	0.216	0.116	0.104	0.156	1.330	0.000	1.838	0.860	0.448	0.406	0.256	0.240	5.970
1986	0.196	0.090	0.086	0.176	2.208	1.420	0.714	1.244	0.722	0.544	0.370	0.182	7.952
1987	0.158	0.064	0.096	0.322	1.872	0.000	0.000	0.204	0.082	0.216	0.190	0.186	3.390
1988	0.098	0.092	0.052	0.158	1.786	1.474	0.578	0.040	0.398	0.210	0.218	0.182	5.286
1989	0.124	0.138	0.110	0.352	2.814	4.892	0.314	0.000	0.084	0.234	0.252	0.176	9.490
1990	0.118	0.058	0.068	0.224	1.260	6.044	0.016	0.718	0.280	0.372	0.048	0.142	9.348
1991	0.102	0.092	0.102	0.100	2.126	0.452	0.000	0.000	0.000	0.000	0.000	0.000	2.974
1992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1993	0.000	0.000	0.000	0.000	0.000	0.000	1.066	0.460	0.000	0.000	0.000	0.000	1.526
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000	0.026	0.000	0.000	0.000	0.248	0.000	0.000	0.000	0.274
1996	0.000	0.000	0.000	0.000	0.000	0.284	1.086	0.466	0.204	0.066	0.000	0.000	2.106
1997	0.000	0.000	0.000	0.000	0.076	0.000	1.850	0.270	0.000	0.000	0.000	0.000	2.196
1998	0.000	0.000	0.000	0.000	0.000	0.000	1.002	1.192	0.334	0.052	0.000	0.000	2.580

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		impacts of the Project was evaluated and upon which the Corps relied when making the permitting decision. **Response #767-42:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated as required and as appropriate. Denver Water's ability to reduce bypass flows below Dillon Reservoir is pursuant to its ROW agreement with the USFS (see DEIS Section 3.1.5.4), which is part of its current system and operations. Denver Water may reduce bypass flows whenever mandatory restrictions are imposed on the use of water in the area served by Denver Water due to insufficient water supply. Although Denver Water has the ability to reduce bypass flows below Dillon Reservoir, it has not exercised that right to date in response to water use restrictions imposed on its customers. Denver Water has had to reduce the outflow from Dillon Reservoir below 50 cubic feet per second (cfs) for temporary periods in the past for maintenance, repairs or construction on associated water facilities. The Moffat Project could potentially reduce Denver Water's need to reduce bypass flows below Dillon Reservoir because the Moffat Project would increase Denver Water's water supply and the reliability of its system in which case restrictions may be imposed less frequently. Since there is no indication that reductions in Dillon Reservoir bypass flows would increase under the Proposed Action, a Section 404 Permit condition requiring daily releases from Dillon Reservoir to not drop below 50 cfs would not be required by the Corps since this is not an effect of the Proposed Action that requires mitigation. Additionally, as part of the Colorado River Cooperative Agreement, if Gross Dam is enlarged, Denver Water has agreed not to reduce the minimum outflow of the Dillon Reservoir unless in bans outdoor lawn watering.

1999	0.000	0.000	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.432
2000	0.000	0.000	0.000	0.000	0.000	0.000	1.536	0.658	0.610	0.398	0.208	0.204	3.614
2001	0.146	0.114	0.122	0.248	3.218	3.484	1.782	0.952	0.558	0.344	0.202	0.182	11.350
2002	0.180	0.154	0.126	0.362	2.150	2.668	0.734	0.436	0.358	0.296	0.224	0.168	7.856
2003	0.164	0.122	0.118	0.044	0.000	0.000	2.078	1.242	1.170	0.412	0.270	0.204	5.824
2004	0.138	0.104	0.196	0.377	2.694	3.876	1.062	0.768	0.500	0.338	0.244	0.050	10.347
2005	0.000	0.000	0.000	0.000	0.000	0.000	1.172	0.956	0.478	0.474	0.375	0.340	3.795
2006	0.213	0.184	0.163	0.400	3.828	5.774	1.901	0.854	0.438	0.142	0.113	0.246	14.256
2007	0.190	0.150	0.152										

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	Tap-Smart: The Conservation Master Plan Denver Water **Submitted to Colorado Water Conservation Board** **April 30, 2007**	***Comment #767-41*** *(ID 5228)**:*** *Public Comment and Factual Conclusions. As a general matter, a proper review of the DEIS was made difficult by the lack of or limited availability of information to the public, including but not limited to access to an executable model of PACSM, Denver Water's operating memoranda for PACSM, and supporting memoranda related to cost estimates for the Project alternatives. One of the essential elements of the NEPA process is to promote "informed decisionmaking and informed public comment."[53] To provide such informed comment, the public must have access to documents referenced in and supporting conclusions included in the DEIS, including documents referenced in the supporting memoranda. Denver Water claimed that operating criteria for PACSM, which model was used to support virtually all of the conclusions in the DEIS, were "proprietary materials." Based on this assertion, the Corps did not post the memoranda on its website with the other technical supporting documents. Without access to the operating criteria for the central hydrology model of the DEIS and an executable copy of the model, the public has no means to assess the adequacy of predictions regarding water availability and expected impacts on streamflow. "The safety valves in the use of such sophisticated methodology are the requirement of public exposure of the assumptions and data incorporated into the analysis and the acceptance and consideration of public comment. . . ."[54] As a general matter, "any supporting data or studies expressly relied upon in an EIS must be available and accessible to the public."[55] FOOTNOTES: [53] Utahns for Better Transp. v. United States Dep't of Transp., 305 F.3d 1152, 1163 (10th Cir. 2002). [54] Natural Resources Defense Council, Inc. v. Herrington, 768 F. 2d 1355, 1391 (D.C. Cir. 1985). [55] California v. Block, 690 F.2d 753 (9th Cir. 1982).*

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	Table of Contents Executive Summary: Water for Tomorrow ....4 Introduction to Tap-Smart ....7 What This Plan is NOT ....7 Audience for the Tap-Smart Plan ....8 Tap-Smart Conservation Goal ....8 Impacts of Drought on Future Savings ....9 Influences on Water Use ....10 Plan Costs and Demand Reductions Summary ....11 Existing Customers ....11 Natural Replacement ....13 New Customers ....14 Annual Customer Participation ....16 Tap-Smart Plan Measures ....17 Flexibility in the Tap-Smart Plan ....18 Rates ....18 Final List of Selected Measures ....19 Additional Considerations ....20 City & County of Denver Government Accounts ....20 Conservation Measures for General Purpose Government ....21 Gearing Up Our Own Efforts ....22 Tool Basket of Customer Information ....23 Master Meter Distributors ....24 Fixed Contracts ....24 Three-Days-Per-Week Watering Restriction ....25 Research, Monitoring and Evaluation ....25 Public Involvement Plan ....26 Conclusions ....27 Historic Savings ....27 Opportunities to Save Water ....28 Monitoring and Evaluation ....28 Summary and Commitment ....29 Bibliography ....31 Tables 1 –Tap-Smart Conservation Master Plan Elements 2 -- Water Use by Customer Type 3 -- Conservation Measures for New Customers 4 – Tap-Smart Conservation Plan Measures and Costs 5 -- 2007 Rate Structure 6 – City and County of Denver Measures Figures 1-- Conservation Goal in Acre-Feed Savings 2 – Tap-Smart Conservation Plan Costs by Measure Type 3 – Tap-Smart Costs to Existing Customers 4 -- New vs. Existing Customer Comparison 5 -- Annual Customer Participation 2	**Response #767-41:** Please see the response to Comment ID 5212. ***Comment #767-35*** *(ID 5227)**:*** *One of the gravest informational shortfalls in the DEIS impacts analysis is the use of averages throughout the document, masking the actual range of environmental impacts that are likely to result.[56] For example, rather than utilizing the driest year on record as a baseline scenario, the DEIS employs the "average dry year" to determine and compare dry year impacts. Such a comparison is not helpful in determining the most significant impacts that may result from the Project alternatives and does not allow appropriate public comment regarding mitigation terms. FOOTNOTE: [56] See Memo, Bishop-Brogden Associates, March 17, 2010.* **Response #767-35:** A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly and annual summaries of stream flows, diversions, reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with each Moffat Project alternative. Daily data were used in resource assessments where the magnitude or value of the resource is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily data was utilized to evaluate effects on several resources, including surface water, aquatic resources, stream morphology, recreation, floodplains, riparian and wetlands areas, wildlife and special status species, and water quality (see DEIS Section 4.1, subheading Use of Daily and Monthly PACSM Data for Resource Evaluations). Daily data were used to generate flow duration curves and daily

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	Appendices Appendix A – Board Resolution – September 28, 2005 Appendix B – Past and Current Conservation Measures Appendix C – Future Opportunities to Save Water Appendix D –One Sample Conservation Master Plan, March 2006 Appendix E – Tap-Smart Budget for 2007 Appendix F – Public Involvement Process Appendix G – Why Conserve (pamphlet) Appendix H – Rebates Paid 2006 and to April 30, 2007 3	hydrographs, and to determine the frequency and magnitude of daily flow changes (see DEIS Appendices H-4, H-5, and H-6). Averaging the five driest years as opposed to selecting the single driest year is a reasonable approach for evaluating hydrologic effects under dry conditions. The average of the five driest years captures a broader range of flow conditions and diversions that could be expected to occur during a dry year and better represents a typical dry year. For example, Moffat Project diversions in a dry year following a wet year may be different that a dry year following a dry year. These differences would be reflected in a dry year average that includes five years with varying hydrologic conditions in preceding years. The driest year, could be the year with the lowest total natural flow during the runoff period which extends from April through August, or it could be the year with the lowest total annual natural flow, or depending on the resource it could be the year with the lowest natural flow in a specific month. Furthermore, conditions may be more or less dry depending on the location selected. Therefore, the approach selected to average the five driest years on based on the estimated natural flows at the U.S. Geological Survey (USGS) gage, Colorado River near Kremmling, takes into account the spatial and temporal variability in “dry conditions” that can occur. Even if one of the five dry years was selected for evaluation of impacts, the predicted impacts to flows as a result of the proposed Moffat Project in a dry year would not change since there would be no additional diversions associated with the Moffat Project in any of the five dry years included in the “average dry year.”

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	Tap-Smart: Denver Water's Conservation Master Plan **Executive Summary: Water for Tomorrow** As the Denver Metro area continues to grow, planning for its water future is an important challenge to Denver Water. Successful stewardship of this precious resource is critical to Colorado's prosperity and welfare. The Denver Water Board's long history of water management and planning will enable it to meet this challenge. No single water resource is sufficient to meeting this challenge. In its 1997 Integrated Resource Plan (IRP) the Board recognized the need to invest in and manage a diverse portfolio of resources to meet its future needs and minimize risks. The Board is pursuing opportunities that increase supply through **conservation**, **recycled water**, and **water supply development**. Each of these resources is an essential piece to our future. **Conservation** In the 2002 IRP the Board set a goal to reduce water use by 29,000 acre-feet by 2050. This goal was in addition to the 30,000 acre-feet of reductions Denver Water users have achieved since 1980. The 2002 drought increased the focus on conservation. The competing uses of water around the state between the environment, agriculture, recreation, municipal and industrial, make it increasingly clear that water waste is unacceptable in Colorado today. Consequently, the Board in 2005 reaffirmed its commitment to conservation by accelerating its 50-year conservation goal. **Recycled Water** Denver Water opened its Recycled Water Plant in 2004. The plant receives water from the Metro Wastewater facility after its treatment process, treats the water to nonpotable standards, and delivers the recycled water to industrial and irrigation users. Over the next 15 years, the recycled water distribution system will be expanded to serve more users, delivering 17,000 acre-feet per year. **Water Supply Development** Denver Water is pursuing numerous options for increasing water supply. Some examples include purchasing and constructing storage from previously mined gravel pits north of Denver, implementing small scale system refinements to manage the system for greater productivity, and developing new water supply in the Moffat Collection System. 4	***Comment #767-34*** *(ID 5226)**:*** *The DEIS also includes factual and scientific conclusions that do not satisfy the legal requirement that an agency's conclusions have "substantial basis in fact."[57] At a minimum, an agency must "consider[] the relevant factors and articulate[] a rational connection between the facts found and the choice made."[58] If the agency fails to "make a reasonably adequate compilation of relevant information and [the DEIS] sets forth statements that are materially false or inaccurate" the DEIS cannot provide the basis for an informed evaluation or a reasoned decision as required by NEPA.[59] The DEIS's assumption that Denver will face an 18,000 acre-foot shortfall in demand, without considering Denver Water's current conservation goals; that there will be only negligible environmental impacts to resources, when the impacts on those resources were not quantitatively analyzed; and that drought restrictions are expensive and undesirable without providing any basis for such a finding, are examples of conclusions without a "substantial basis in fact." FOOTNOTES: [57] Izaak Walton League of America v. Marsh, 655 F.2d 346, 371-72 (D.C.Cir.), cert. denied, 454 U.S. 1092, 102 S.Ct. 657, 70 L.Ed.2d 630 (1981). [58] Selkirk Conservation Alliance v. Forsgren, 336 F.3d 944, 953-54 (9th Cir.2003). [59] Sierra Club v. U.S. Army Corps of Engineers, 701 F.2d 1011, 1030 (2d Cir. 1983).* **Response #767-34:** Conservation Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide

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	The combination of conservation, recycled water, and new water supply development is the foundation of the diverse portfolio of resources that will enable Denver Water to meet future water needs and minimize risks. Tap-Smart: Denver Water's Conservation Master Plan The Tap-Smart Plan is a key strategic undertaking. Only through fostering a conservation culture in this semi-arid region can we truly ensure a sustainable water resource. The Tap-Smart Plan asks all of Denver's water users to eliminate water waste and share fairly the responsibility of water conservation. That level of conservation will create positive benefits for some time: • Reservoir levels are higher, helping us through future droughts; • More water remains in streams and rivers, supporting agriculture, the environment, and water-based recreation. Conservation measures in this Tap-Smart Plan are grouped into seven categories, specifically: • City and County of Denver government programs • Education and Outreach • Diagnostics • Rebates and Incentives • Rules • Research, Monitoring and Evaluation • General Administration of all the measures. **Government Takes the Lead** Mayor John Hickenlooper has rightly concluded that Denver's city government must lead the way by being a role model for water conservation. The Mayor's sustainability initiative, called Greenprint Denver, will include water conservation as one of the major components. Within the next year in the City and County of Denver government properties: • Indoor water diagnostics (audits) will be done on city buildings; • 100 urinals and toilets in high-use areas will be retrofitted for efficiency; • A plan to improve irrigation efficiency throughout Denver will be launched; • Plans will be initiated to build conservation into all of city government's property management. **Denver Water Gears Up Its Own Conservation Efforts** 5	vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Watering Restrictions Mandatory watering restrictions are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 AF. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. ***Comment #767-14*** *(ID 5225)**:*** *Based on the above comments, the attached Appendices, and the Joint Rebuttal, Summit County believes that the Moffat Project proposed by Denver Water is not in the public interest. Denver Water has not demonstrated a demand sufficient to justify the Project, and Denver Water has an obligation to engage in reuse if such an alternative is economically feasible. Given the technological developments in water treatment plants and the success of the Prairie Waters*

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	Continuing an effort that began over 25 years ago, Denver Water will ensure that the water collection, treatment and delivery system is as leak-free as possible. In addition, Denver Water is evaluating, improving and accelerating its conservation programs to make sure they achieve the needed level of customer response, while helping customers maintain the lifestyle they desire. **Businesses and Citizens Do Their Part** As government steps up and begins reducing its water usage, Denver businesses and citizens will be asked to adopt a conservation culture, maintaining savings they achieved during the drought or stepping up to conservation. The model selected to involve these customers and create a conservation culture is Community-based Social Marketing (CBSM) as defined by Dr. Douglas McKenzie-Mohr. The direct cost to Denver Water of the Tap-Smart Plan is estimated at $143,000,000 for the next ten years. This investment will save an estimated 29,000 acre-feet of water per year by the end of the ten-year Conservation Master Plan horizon, if all goes as planned. Conservation programs will continue to include rebates, incentives, educational programs and practical help for citizens to help them use only the water they need. By implementing the water conservation programs, the supply initiatives, and fully using all the allocations for recycling water, Denver Water intends to meet the needs of its customers for tomorrow and the foreseeable future. 6	*Project, Denver Water has not shown that reuse and conservation are not the least environmentally damaging practical alternative to address future shortfalls in water supply.* **Response #767-14:** All water delivered by Denver Water to its customers is classified as reusable or non-reusable. Reusable water can be used and reused to extinction. Use of reusable water increases Denver Water's system supply and reduces the amount of water diverted from other components of the system. The main sources of reusable water in Denver Water's collection system are the Blue River water delivered through the Roberts Tunnel, Fraser River water diverted by the Meadow Creek system (the only reusable water associated with the Moffat Collection System), and transferred agricultural water rights on the East Slope. The Metro Wastewater Reclamation District Plant and the Littleton–Englewood (Bi-City) Wastewater Plant are the primary return points of Denver Water's reusable water. Denver Water keeps track of reusable return flows and currently uses, or is planning to use, most of its reusable supplies through river exchanges, transfers to gravel pits, and to supply water for the non-potable recycling project. As shown in Table 2-9, approximately 7,600 AF/yr on average of unused return flows would be available primarily in the winter months, when Denver Water's customer demands, non-potable demands, and exchange potential are relatively low. The amount of unused reusable supplies available varies considerably from year to year, ranging from 0 AF to as much as 37,555 AF/yr. Refer to FEIS Section 1.3.1, Non-Potable Recycling Facility. Water conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant.

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	Tap-Smart: the Conservation Master Plan **Introduction to Tap-Smart** In September, 2005, the Denver Water Board requested from staff a plan that would accelerate the accomplishment of its 2050 conservation goal to 2016. Appendix A contains the text of the Board's Resolution. On March 22, 2006, staff presented its first draft of the updated Conservation Plan to the Board. There were several questions and issues raised by the Board at that meeting. Staff did further research, revised estimates, and presented a new plan On May 24, 2006. Over the months since then, even more revisions have been made, including naming this plan "Tap-Smart." This document describes the new Tap-Smart Plan. The relevant sections of the March 2006 draft Plan submitted to the Board are attached to this document as Appendices B, C, and D. Those pages describe the two-year process of researching the universe of conservation methods, filtering the 480 possible measures down to the most predictably effective ones, estimating costs for labor and materials, and comparing those to the goal stated by the Board. In addition to answering many of the Board's questions, staff uncovered even more issues and concerns. Current events such as the probability of recurring drought, climate change, population growth, and changing economic events will raise even more questions in the future. Therefore, this master Plan will be updated at least every five years, and the annual plan and budget will be scrutinized by the Board and staff very carefully to make sure everything is on track to achieve the goal. **What This Plan is NOT** The Tap-Smart Plan is not a full Integrated Resource Plan (IRP) although items in the 2002 IRP form the basis of goals and measures in this Tap-Smart Plan. Neither is this document a Drought Response Plan. Both of those documents already exist and are related to this Plan but not part of it. Denver Water Board and staff fully understand that the only reasonable model for preparing for the future is to look at all the options (the IRP and its revisions) and prepare for water shortage emergencies (the Drought Response Plan of 2004). These documents are available on request from Denver Water. There is also a separate plan for dealing with non-drought emergencies and none of that Plan is included here. The Crisis Communications Plan is handled by the Manager of Community Relations. If demand-reduction measures are needed during a crisis, Conservation Section staff will be assigned to assist as needed, but those crisis-response measures are not addressed here. 7	The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Comment #767-6*** *(ID 5224)**:*** *However, if the Moffat Project is to proceed, a supplemental DEIS is necessary to correct the errors in the initial DEIS for satisfaction of NEPA's procedural requirements, to accurately identify expected environmental impacts, and to define appropriate mitigation terms to limit the impact of this project on Summit County and other West Slope entities.* **Response #767-6:** Per 40 CFR 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a supplemental document will not be prepared for the Moffat Project. As a result of comments received on the DEIS, however, new analysis was conducted for the following resources in the FEIS: water quality (FEIS Section 5.2), groundwater (FEIS Section 5.4), aquatic

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	There is an overall Communications Plan which includes issues such as water quality, recycled water, customer services and other issues only indirectly related to water conservation and efficiency. The only portion of the Communications Plan included in this Tap-Smart Plan is the part about conservation. **Audience for the Tap-Smart Plan** This Plan is written for several diverse audiences, the most important of which is the Denver Board of Water Commissioners in fulfillment of their September 2005 directive. Additionally, the Plan is for use by Denver Water employees, Distributors, and stakeholders. In this current form with revised Tables and Appendices, this plan is intended to fulfill the requirement of Colorado HB-1365, also called C.R.S. 37-60-126. This law states that all entities which serve more than 2,000 acre-feet of water per year must file a Conservation Plan with the Colorado Water Conservation Board and then update the Plan at least every seven years. Therefore, this Tap-Smart Conservation Master Plan is submitted to the Office of Water Conservation and Drought Planning of the Colorado Water Conservation Board as required by law. **Tap-Smart Conservation Goal** In its 2002 Integrated Resource Plan, the Board set an overall system conservation goal of 165 gallons per capita per day (GCD) for all uses of treated water[1]. This goal was to be achieved by build-out of Denver Water's Service Area, or by 2050. In 2005, the Board requested that staff develop an accelerated conservation plan for its consideration that would achieve the 165 GCD goal by 2016. To achieve the goal of 165 GCD, Denver Water's existing customers must reduce their use by a total of 39,000 acre-feet (AF) by 2016. Figure 1 shows one scenario to achieve 165 GCD. Staff assumed that 10,000 AF of permanent demand reductions was achieved during the drought through hardware and behavioral changes in water use. This Tap-Smart Plan can achieve up to 25,000 AF of demand reductions, which leaves 4,400 AF to be gained through other means such as conservation-oriented rates. The Tap-Smart Plan is flexible in that water reductions can be shifted to water rates and away from active conservation measures, thereby reducing the cost of the plan. That is, excessively costly or otherwise less appealing conservation measures can be cut from the Tap-Smart Plan. This is discussed further in this document. [1] Per capita, system-wide water use is simply a measurement of treated water deliveries made by Denver Water, divided by the population served. These figures take all uses of water into account including: residential, commercial, industrial, institutional and unaccounted for water. A separate calculation of single family per capita use (SFGCD) will be discussed later. 8	biological resources (FEIS Section 5.11), wetlands and riparian areas (FEIS Section 5.8), wildlife (FEIS Section 5.9), special status species (FEIS Section 5.10), air quality (FEIS Section 5.13), and socioeconomics (FEIS Section 5.19). ***Comment #767-33*** *(ID 5223)**:*** *The purpose of this memorandum is to provide a summary of our review and analysis of the hydrology information presented in Denver Water's ("DW") Moffat Collection System Project (MCSP) Draft Environmental Impact Statement (DEIS) dated October 2009, as well as a summary of key issues and concerns regarding the DEIS. Our research and analysis has been focused principally on West Slope hydrologic impacts, particularly on the Fraser and Blue Rivers. This memorandum is organized into two main sections; a discussion and analysis of specific technical concerns and issues with the DEIS, and a summary of overall key issues and concerns with the DEIS. DEIS Technical Issues The following section presents a summary of the technical issues and concerns that we have identified regarding the hydrology information contained in the DEIS analysis.* **Response #767-33:** The Corps notes the comment. ***Comment #767-22*** *(ID 5222)**:*** *The PACSM Model and Assumptions The following summarizes the technical issues associated with the use of PACSM for the impacts analysis presented in the DEIS. It appears that all of the main flow-related resource effects have been evaluated based on the projected changes in hydrology using the PCASM model. Therefore, the accuracy and resolution of the PACSM model are critical to the assessment of all hydrologic impacts associated with the MCSP.*

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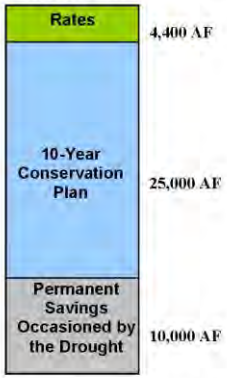
	Figure 1 – Conservation Goal 39,400 AF Goal  The Board of Water Commissioners approved a new inclining block rate structure which became effective January, 1, 2007. The blocks are more steeply inclining than previous blocks at Denver Water. The goal for implementing this rate structure was to help eliminate water waste and encourage more conservation. The Board will evaluate the effects of the 2007 rate structure and make adjustments in the years ahead as they deem necessary. **Impacts of Drought on Future Savings** Beginning in 2002, water use has been substantially reduced from historic levels by drought conditions and Denver Water's drought response measures. Those measures included mandatory water use restrictions and drought surcharges. The average use between 1993 and 2001 was 211 GCD. The average use between 2002 and 2004 was 169 GCD, which is a 20 percent decrease from the pre-drought levels. In 2005, Denver Water's reservoirs began to recover from the drought and mandatory drought restrictions were lifted. Water use in 2005 increased 12 percent to 163 GCD compared to 2004 water use of 150 GCD due to the removal of mandatory restrictions and a hotter and drier summer. Staff cannot fully determine what level of water use reductions achieved during the drought is durable. Two recent studies suggest there may be at least a partial return to pre-drought use without additional measures taken by the Board. Denver Water polled other water providers in the West during the drought. The results showed other utilities had seen a rebound in use in the years after a 9	**Response #767-22:** Please see the response to Comment ID 5212. An independent review of PACSM was conducted for the Moffat Project EIS, which concluded that PACSM is adequate for the modeling purposes of this EIS and can be relied on to provide hydrologic information (Boyle 2003, 2004). As a component of the UPCO, an additional independent review of PACSM was conducted. That review concluded that the model adequately simulates the hydrology, major water rights and the operations of major water storage and diversion projects within the Colorado River Basin for the purpose of that multi-agency study, which addresses long-range water supply planning for numerous West Slope entities in Grand and Summit counties (UPCO PACSM Review Committee 1999). ***Comment #767-32*** *(ID 5221)**:*** *Study Period Hydrology The hydrologic period of record used in PACSM for modeling of all hydrologic changes and effected resources is based on data from 1947-1991 throughout and beyond Denver Water's (DW) collection and service system. While 45 years is a sufficiently long period of time, and includes a variety of hydrologic conditions, it does not capture some of the driest and wettest conditions on record since 1991 for the source area streams where diversions will occur under the proposed project. DW'S 2002 IRP Update states: "The selection of the study period used by PACSM is important because it determines the frequency and duration of extreme hydrologic events that are simulated. The study period can influence the conclusions drawn from an analysis." [2002 IRP, page 14] Further, DW concluded in its August 28, 2003 'Study Period and Verification Period Selection' Operating Information memorandum: "The study period selection is important for several reasons. It determines the number and type of extreme hydrologic events which will be simulated and can influence the*

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	drought had eased. The Drought Shadow theory predicts that water use will increase to levels 5 or 10 percent lower than pre-drought levels. In many instances, however, the water utilities attenuated or eliminated their aggressive conservation efforts once the drought threat had diminished. A February 3, 2006 public opinion analysis done by Ciruli Associates indicates an interest by water users to continue their conservation efforts, "but the polls also point out that conservation behavior is partially event-related, and as reports of the recent multi-year drought fade, conservation efforts could decay." Because of the uncertainty with regard to how far demand will rebound as the drought eases, staff is using 200 gcd as the baseline to measure savings in the Tap-Smart Conservation Plan. This amount is 5 percent below the pre-drought water use levels of 211 gcd and is consistent with the "drought shadow" theory. The permanent changes in water use caused by the drought may be more than 5 percent, but it will only become apparent in subsequent years and be counted toward the 165 GCD goal. **Influences on Water Use** The effect of the drought on long-term water use levels will remain uncertain for several years because of the various factors which affect system-wide water use. Among these factors are: • Temperature and precipitation • Household income • Water rates • Mandatory water use restrictions • Level of conservation efforts by a utility • Technological improvements in water use fixtures and appliances For example, weather conditions have a significant impact on outdoor water use during the irrigation season (April-October). Most of the landscapes in Denver Water's service area require more water than natural precipitation provides. In hot, dry years, the requirement for supplemental irrigation increases, and in wet, cool years, the need for supplemental irrigation decreases. Household income and water rates cause changes in water use levels on a system-wide basis. As household income increases, water use typically increases. Conversely, as water rates increase, water use decreases. Commercial and Industrial accounts, which typically have lower outdoor water use, are affected mostly by pricing factors. For some commercial and industrial accounts, the water bill makes up a large percentage of total costs. Mandatory water use restrictions and successful conservation programs implemented by a utility will decrease water use. Mandatory restrictions are usually used in emergencies such as droughts and are meant to achieve 10	*conclusions drawn from a study. "The study period selected must be representative of the true basin hydrologic conditions, or erroneous conclusions could be drawn from the simulation results." These are appropriate and accurate statements. However, the PACSM period of record used in the DEIS excludes some of the critical extreme high and low flow conditions observed, as well the "frequency and duration of extreme hydrologic events" in the Fraser, Blue and Colorado river basins. Therefore, the conclusions with regard to any of the effects from the proposed diversions on all of the noted water-related resources are unreliable.* **Response #767-32:** Please see the responses to Comment IDs 5199 and 5220. ***Comment #767-31*** *(ID 5220)**:*** *Five Driest and Wettest Years The DEIS does not accurately portray the five driest and wettest years on record for the streams in the Colorado River Basin above the Kremmling gage. The dry year conditions may be worse than shown and the wet year depletions may also be worse than shown. The consequences of this are that the DEIS may understate the magnitude and duration of extreme hydrologic events, and that the resource effects analysis based on this information may be invalid. This conclusion is apparent from the two following analysis. • Selection of Five Driest and Wettest Years The DEIS presents all of its dry and wet year impacts using the average flow from the five driest and five wettest years of the study period based on annual volume at the Kremmling streamgage. The PACSM hydrology period is now nearly 20 years out of date and does not accurately portray the five driest and wettest years for the Upper Colorado River Basin. Table 1 displays the current five driest and five wettest years on record for various locations in the basin, and highlights the years that are not included in the*

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	temporary water use reductions. Conservation programs are designed for long-term and sustainable reductions in water use. The influences on water use make it difficult to determine the durability of savings achieved during the drought. As a result, staff suggests increased monitoring and evaluation of water use and conservation measures. This will give staff and the Board a greater understanding of changes in water use. **Plan Costs and Demand Reductions Summary** **Existing Customers** The Tap-Smart Plan costs have not changed significantly from those presented to the Board in March 2006. Staff has expanded the low-cost measures as much as possible to provide the Board with lower cost options in the Plan. However, staff has not eliminated any measures, recognizing that the merits of any particular measure may not be based solely on costs. For example, many of the higher cost measures involve irrigation efficiency which is the most visible of water uses and may be one the Board wants to implement, despite the costs. Table 1 lists the elements included in the Tap-Smart Plan in a matrix that shows which elements apply to the various categories of customers: single-family residential, multi-family residential, commercial/industrial , or government. **Table 1: Tap-Smart Conservation Master Plan Elements** Account: RSF, RMF, C&I, GOV Measure Short Description New Existing 11	*PACSM study period. This table clearly shows that the PACSM hydrology period completely misses one or more of the driest and wettest years at nearly every location in the basin. Note that only locations which had streamflow data available from at least 1954 through 2002 were selected. This dramatically understates the level of depletions and the magnitude of the impacts to the source area streams. This hydrologic period may represent the critical period in terms of total water supply to DW's system; however it is not the critical period in terms of hydrology and aquatic effects to the source area streams. [SEE SOURCE FILE FOR TABLE 1, FIVE DRIEST AND WETTEST YEARS AT SELECT UPPER COLORADO RIVER BASIN LOCATIONS BASED UPON ACTUAL STREAM GAGE DATA.] • Accuracy of the Five Driest and Wettest Years The five driest and wettest years selected for analysis in the DEIS are based on the annual volume of 'virgin' streamflow predicted by PACSM at the Kremmling gage [page 4-13]. However, the DEIS does not provide any information regarding whether these years are reflective of the driest and wettest years that occur now under current conditions or will occur in the future following completion of the MCSP. The flow-dependent resources should be evaluated based on the driest and wettest conditions that they will actually experience, not during the years modeled of dry/wet native flows (which no longer exist). Although PACSM is a daily operations model, the DEIS does not present any daily, monthly or annual hydrology information; only averages. Based on the projected hydrology using PACSM output completed for the UPCO study (2003) under Scenario 3, which is very similar to the Preferred Alternative, a comparison was made to the DEIS modeled dry and wet years as shown on Table 2. Three of the five driest years at Kremmling modeled for UPCO following MCSP are not the same as the dry years shown by PACSMs 'virgin' conditions modeled in the DEIS. Similarly, two of the five wettest years at the Fraser*

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		River at Granby and at the Fraser River at Winter Park gages are not the same. In both case, the difference in total annual flow is approximately 10% to 15%. This level of change may result in additional stream segments being considered for detailed water quality analysis in the DEIS. [SEE SOURCE FILE FOR TABLE 2, COMPARISON OF DEIS AND UPCO PACSM3 SCENARIO DRIEST AND WETTEST YEARS.] While we understand that certain revisions may have been made to PACSM since the UPCO output, most of the revisions do not dramatically change the projected depletions contained in the UPCO output. Regardless, the comparison shows that the DEIS evaluation of dry years effects may not be representative of the actual conditions following completion of the project. Therefore, the DEIS may not accurately portray the dry-year impacts to the source area hydrology. **Response #767-31:** Please see the responses to Comment IDs 5199 and 5208. It is appropriate to select representative dry and wet years based on natural or virgin flow hydrology. Table 1 referenced in the comment shows that 1983 and 1984, which are included in the PACSM study period and in the wet year average, were the two wettest years at almost all locations shown in the table. Table 1 also shows that at each location at least one and often two of the five driest years are included in the PACSM study period. Therefore, the DEIS includes information for years that are reflective of the some of the driest and wettest conditions that have occurred in the past. The PACSM study period does not have to include all of the five driest and wettest years at each location shown in Table 1 to accurately characterize hydrologic effects in dry and wet years. Historical natural flows, which are based on historical gage records, represent the best available information to estimate hydrologic effects associated with the Project. The probability of similar hydrologic conditions

Educational							
Xeriscape Planning & Design Clinics	X				One-on-one sessions with landscape architect to design Xeriscape areas		X
Cooling Tower Monitoring Program		X	X	X	Voluntary participation in monitoring program for increasing cooling tower cycle concentration		X
Public Housing Retrofit		X			DW will retrofit at DW cost toilets, showerheads and faucet aerators for Public Housing Authority		X
Car Wash Certification			X		Audit and efficiency certification process for car washes		X
Conservation Education Program	X				School education program to teach water conservation, and distribute new water efficient devices		X
MF Residential Audit Program		X			Audits and showerhead retrofits offered on request to Residential Multi-Family customers		X
Irr. Classes & Seminars	X				Irrigation efficiency classes for residential customers		X
Irrigation Check-ups for large Accounts		X	X	X	Irrigation check-ups by request		X
Outdoor Xeriscape Kiosks	X				Place Xeriscape kiosks at garden centers. Includes new instructional documents to cover the seven principles of Xeriscape	X	
Natural Areas			X	X	Take out 75 acres of grass in city landscapes and replace it with natural grasses and "native" flowers	X	
Indoor Conservation Kiosks	X	X	X		Put conservation documents in displays and kiosks at do-it-yourself retail stores. Includes information about leak detection and repair	X	
Financial							
Irrigation Efficiency Incentive Program		X	X	X	Ongoing outdoor irrigation efficiency that pays the customer an based on the actual amount of water saved ($9,000 per acre-ft.)		X
C/I Incentive Program			X		C&I customers receive up to $40,000 for improving efficiency. Minimum savings of 300,000 gallons per year to qualify ($9,000 per acre-ft.)		X
ET Controller Rebate	X				$50 incentive payment for installation of ET controllers		X
1.6 GPF Toilet Rebate	X	X	X	X	$25 toilet rebate for replacing old toilets with new 1.6 gaff toilets		X
HET Rebate	X	X			$125 toilet rebate for high efficiency toilets		X
Clothes Washer Rebate	X	X			$200-$400 rebate for purchase and installation of efficient clothes washers		X
Wireless Rainfall Sensor Rebate	X				$50 rebates for installation of wireless rainfall sensors	X	
Regulatory							
0.5 GPF Urinal Rule			X	X	Require new commercial developments to have 0.5 gaff urinals	X	
Time-of-Sale Retrofit	X	X			Require retrofit of toilets, showerheads and faucets at sale of home	X	
New Customers							
Five Acre Rule		X	X	X	Review irrigation plans for projects that include more than 5 acres of irrigation, and follow-up with penalties if necessary		X
New Homes Regulation	X				Require new SF homes to have water-efficient toilets and clothes-washers. DW pays half	X	
Require Irrigation Meters	X	X	X	X	Operating rule to require separate irrigation meters for all new properties that have between 0.5 and 4.9 acres of landscaped area	X	
Sprinkler System Efficiency Rule	X	X	X	X	New customers required to have sprinkler systems that meet Distribution Uniformity (DU) of at least 65%, and other aspects	X	
Soil Amendment Rule	X	X	X	X	New customers required to amend soil	X	

Figure 2 displays the Total Tap-Smart Plan costs for Denver Water and its customers. Under this Plan, Denver Water would incur $143 million in costs for conservation measures associated with existing customers. Customer costs are

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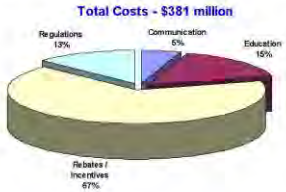
	additional costs of high-efficiency toilets, landscaping changes, and leak repair, among others, that Denver Water does not pay in incentives and rebates. **Figure 2 – Tap-Smart Conservation Plan Costs by Measure Type Existing Customers**  **Natural Replacement** The demand reductions displayed in Figure 3 show the expected costs differentiated by active conservation and "natural replacement." Natural replacement (the replacement of toilets, showerheads and faucets as they wear out or break) to federally mandated efficient fixtures, has been accelerated in the Tap-Smart Plan. Under this revised Plan, the Board and its customers will spend $57 million to replace these inefficient water fixtures. The drawbacks to accelerating the replacement of these fixtures are the costs to the Board that it otherwise would not have to spend and the replacement of fixtures that are fully functional but not efficient. The benefits of accelerating natural replacement of devices and fixtures are fuller reservoirs which may help to mitigate the effect of future droughts, and the potential for delaying new supply projects by several years. **Figure 3 – Tap-Smart Plan Costs Existing Customers** 13	occurring in the future is unknown. The resource evaluations did not rely solely on monthly and annual averages. Please also see the response to Comment ID 5199. The comparison of average annual flows using PACSM output completed for the UPCO study (2003) under Scenario 3 is flawed. The five driest and wettest years from the PACSM study period were selected based on the natural flow or virgin flow at the USGS gage Colorado River near Kremmling whereas the five driest and wettest years from the UPCO Scenario 3 output were selected based on modeled flows. It would be more appropriate to compare averages for the same five dry and wet years. For example, the average annual flow at the Fraser River near Winter Park in 1961 based on UPCO output was 4,549 AF versus 4,520 AF based on PACSM output for Alternative 1a. Therefore, to accurately compare averages at the locations shown in Table 1, the same five years (1954, 1976, 1961, 1965, and 1955) selected for UPCO data should be compared against an average of Moffat Project data for the same five years. However, there would still be differences even if the years selected coincide due to the changes made to PACSM since the modeling was completed for UPCO. ***Comment #767-21*** *(ID 5219)**:*** *2002 Hydrology The DEIS is flawed with regards to representation of the dry year conditions and the effects of the MCSP during dry years. This is evidenced by a comparison of DEIS projected dry year information with actual conditions recorded in 2002. • Streamflow Much of our review and comparison of streamflows between the modeled flows portrayed in the DEIS and recorded flows show that 2002 is a notable year in terms of hydrology that does appear to be accurately represented in the DEIS. Tables 1 and 5*

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	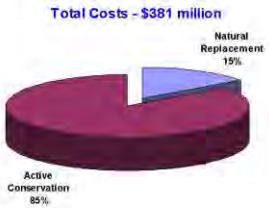 **New Customers** New customers have the same targeted use that existing customers have. Pre-drought water use for existing single family customers was 153 single-family gallons per capita per day (SFGCD) as shown in Table 2. A 22 percent decrease in use, which is consistent with the Board's conservation goal, would bring single family water use down to 119 SFGCD. Consequently, the goal is to reduce water use by existing customers from 153 SFGCD to 119 SFGCD, and ensure that new customers begin service at an average of 119 SFGCD. **Table 2 – Water Use by Customer Type** Customer Type / 2001 Use / 2016 Target Single Family (gallons per capita per day) / 153 / 119 SFGCD Commercial, Multifamily and Industrial (gallons per employee per day) / 110 / 86 GED Government (gallons per capita per day) / 17 / 13 GCD The measures proposed for new customers are all regulatory. Table 3 displays the expected costs for the Board and the customer, as well as expected demand reductions. The largest amount of demand reductions will come from the new Water Efficiency Rating System for residential customers. This measure will use a system that awards points for efficient water fixtures and landscaping materials. A certain number of points will be required before water service is started. **Table 3 – Conservation Measures for New Customers** Costs 14	*both show that the streamflows recorded in 2002 are dramatically different than the 'dry' years represented in the DEIS. [SEE SOURCE FILE FOR TABLE 1, FIVE DRIEST AND WETTEST YEARS AT SELECT UPPER COLORADO RIVER BASIN LOCATIONS BASED UPON ACTUAL STREAM GAGE DATA.] [SEE SOURCE FILE FOR TABLE 5, COMPARISON OF AVERAGE MONTHLY STREAMFLOW ACTUAL HISTORICAL CONDITIONS VERSUS DEIS "CURRENT CONDITIONS" (ALL VALUES IN CFS)] Tables 3.1 – 3.5 compare the DEIS Current Conditions dry year (an average of the dry years modeled under current conditions) and the Full Use Existing dry year conditions shown in DEIS at various locations to the actual recorded daily streamflow in 2002 (based upon CDSS streamflow records). These tables also show the actual historical gage records for the five 'dry' years modeled in the DEIS (1954, 1955, 1963, 1977, and 1981), at various locations in the Fraser River basin. [SEE SOURCE FILE FOR TABLE 3.1, ST. LOUIS CREEK NEAR FRASER GAGE COMPARISON OF DRY YEAR AVERAGE DAILY STREAMFLOW (CFS).] [SEE SOURCE FILE FOR TABLE 3.2. FRASER RIVER AT WINTER PARK GAGE COMPARISON OF DRY YEAR AVERAGE DAILY STREAMFLOW (CFS).] [SEE SOURCE FILE FOR TABLE 3.3, VASQUEZ CREEK AT WINTER PARK GAGE COMPARISON OF DRY YEAR AVERAGE DAILY STREAMFLOW (CFS).] [SEE SOURCE FILE FOR TABLE 3.4, FRASER RIVER AT GRANBY GAGE COMPARISON OF DRY YEAR AVERAGE DAILY STREAMFLOW (CFS).] [SEE SOURCE FILE FOR TABLE 3.5, COLORADO RIVER NEAR KREMMLING COMPARISON OF DRY YEAR AVERAGE DAILY STREAMFLOW (CFS).] The above referenced tables demonstrate that the DEIS modeled Current and Full Use flows in a dry year can vary considerably from both the actual recorded hydrology in the dry years and in 2002. These tables show that the DEIS representation of dry year conditions is inaccurate*

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		compared to the dry year conditions that have historically occurred. This misrepresentation of the dry year flows indicates that PACSM overstates the available yield during dry years or significantly understates the impacts to the source area streams in a dry year. Additional PACSM information obtained from the COE supports the statistical differences with and without hydrology data from 2002. The "Study Period and Verification Period Selection" memorandum described above summarized the procedure used to select the model study and verification periods. Table 6 of this document presents various 'natural' streamflow statistics (from PACSM) at four locations comparing study periods from 1991 dating back to 1940 or 1950 with the entire period of record. The conclusion of this memorandum is that there is no major statistical difference between the two study period options and that the one, three and five year duration droughts were for the exact same years at each location (which are included in the PACSM study period). The COE also provided a table entitled "Natural (Virgin) Flow at Six Locations" dated August 28, 2003 (same date as the Study Period Verification memo), which provides estimates of annual 'natural' streamflow volume from 1916-2002. The following table compares the same statistical information presented in Table 6 of the above memo for the Fraser River near Winter Park location for the following time periods; 1950-1991 (same as Table 6), 1950-2002 and 1992-2002. [SEE SOURCE FILE FOR STATISTICAL COMPARISON OF PERIOD OF RECORDS OF PACSM NATIVE STREAM FLOW FRASER RIVER NEAR WINTER PARK TABLE.] The above table shows that, using the streamflow data through 2002, the worst one, three and five year duration droughts are excluded from the PACSM study period. In other words, the exact procedure used to verify the study period looking backwards in time indicates that PACSM should include data following 1991. • Reservoirs Tables 4.1 – 4.3 compare the EOM

Measure	DW	Customer	Total	Reductions (AF)
Irrigation meter requirement for new accounts	$53,000	$2,117,000	$2,169,000	628
Low-flow urinal (0.5 gpf) requirement for new buildings	$32,000	$46,000	$78,000	300
Water efficiency rating for new homes	$8,289,000	$19,287,000	$27,576,000	3,793
Total	$8,374,000	$21,450,000	$29,823,000	4,720

Initial development of a point system for the Water Efficiency Rating System shows that new homes and apartments may save a substantial amount simply by installing efficient toilets, showerheads and faucets that are required by the 1992 Energy Policy Act regulations. Staff investigated this further by comparing the water use from a sample of existing and new customers.

Figure 4 shows the 2005 water use statistics from a sample of new and existing customers. New customers were defined as new accounts since 2001. The sample size was 1,628 new customers and 13,298 existing customers. The figure shows the cumulative percent of customers that used increasing amounts of water over a year. The median use for an existing customer in 2005 was 120,000 gallons, while the median use for a new customer was 65,000 gallons, a 45 percent decrease.

Figure 4 – New vs. Existing Customer Comparison

Figure 4 represents only a preliminary analysis. Neither the number of people per household nor the lot sizes were taken into account when producing Figure 4. Variations in either characteristic will change water use levels. However, the data show that new customers use significantly less water, resulting partly from efficient water fixtures. Staff will refine Figure 4 as the development of the Water Efficiency Rating measure continues.

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	In time, staff hopes to expand this measure to include Commercial and Industrial customers. In the meantime, efficiencies will be achieved for these customers through the Personal Water Consultant effort that Denver Water started in 2006. **Table 4: Tap-Smart Conservation Master Plan Measures and Costs** **Rebates / Incentives** Irrigation efficiency incentives ($4,500 / AF) | $22,074,512 | 2,073 | $52,600 | 64.5 Commercial / Industrial incentives ($4,500 / AF) | 18,300,314 | 4,651 | $16,400 | 4.8 Public housing retrofits | 3,098,186 | 158 | $22,400 | 1.4 ET controller rebate ($150) | 152,667 | 717 | $500 | 0.4 Natural areas conversion for large landscapes | 22,581,652 | 1,729 | $13,000 | 0.0 Low-flow toilet (1.6 gpf) rebate ($25) | 133,121 | 126 | $2,000 | 0.6 High efficiency toilet (1.0 gpf) rebate ($200) | 2,789,289 | 410 | $10,400 | 2.4 Clothes washer rebate ($200) | 12,241,670 | 1,344 | $18,200 | 3.3 Wireless rainfall sensor rebate ($50) | 545,151 | 166 | $4,500 | 1.5 | 81,916,563 | 11,376 | $21,200 | **Regulatory** Irrigation meter requirement for new accounts | $52,914 | 628 | $3,400 | 5.2 Low-flow urinal (0.5 gpf) requirement for new buildings | 31,986 | 300 | $200 | 0.1 Time-of-sale retrofit of toilets, showerheads and faucet aerators | 19,528,618 | 6,993 | $7,000 | 2.3 Water efficiency rating for new customers | 8,289,287 | 3,793 | $7,200 | 5.6 | 27,902,804 | 11,713 | $6,700 | **Total** | **$142,807,062** | **31,449** | **$12,600** | **5.9** **Annual Customer Participation** The Tap-Smart Plan represents a significant increase in current spending and effort. Figure 5 shows the expectation of annual participation in this Plan. **Figure 5 – Annual Customer Participation** **100** Acres converted to natural areas or Xeriscape **350** Commercial and Industrial incentive contracts or improvements **650** New irrigation-only meters and water use recommendations **1,000** Rebates for rainfall sensors **2,300** New homes audited for efficiency **3,300** Improvements to sprinkler system or landscape **3,600** Toilets replaced with high-efficiency models **5,000** Participating students in education program **5,500** Rebates for high-efficiency washers **8,000** Audits and replacement of fixtures during sale of home or building To highlight a few participation figures: 16	*contents modeled as 'dry' years in the DEIS for both Full Use Existing and Preferred Alternative to the actual EOM contents for several reservoirs utilized by the DW system. These tables show that the hydrology data, and the associated environmental effects, may be significantly inaccurate compared to actual operations of these reservoir during dry years [SEE SOURCE FILE FOR TABLE 4.1, ANTERO RESERVOIR END-OF-MONTH (EOM) STORAGE CONTENT (IN AC-FT) DRY YEARS.] [SEE SOURCE FILE FOR TABLE 4.2, CHEESMAN RESERVOIR END-OF-MONTH (EOM) STORAGE CONTENT (IN AC-FT) DRY YEARS.] [SEE SOURCE FILE FOR TABLE 4.3, WOLFORD MOUNTAIN RESERVOIR END-OF-MONTH (EOM) STORAGE CONTENT (IN AC-FT) DRY YEARS.] o Antero Reservoir is shown in DEIS as remaining essentially full in dry years under both the Full Use Existing and Preferred Alternative projected conditions. However, Figure 4.1 shows that DW completely drained the reservoir in 2002 to minimize evaporation. [SEE SOURCE FILE FOR FIGURE 4.1, ANTERO RESERVOIR EOM CONTENTS DRY YEARS.] o Cheesman Reservoir is one of DW's 'workhorse' reservoirs, is shown in Figure 4.2 to have approximately 10,000 to 30,000 AF more water in storage in the average modeled dry years (Full Use and Alt 1a) compared to actual contents in 2002. [SEE SOURCE FILE FOR FIGURE 4.2, CHEESMAN RESERVOIR EOM CONTENTS DRY YEARS.] o Wolford Mountain Reservoir shown on Figure 4.3 would have as much as 30,000 AF more water in it during the five dry years under the Full Use and Alt 1a conditions than actually occurred in 2003. In other words, the DEIS overstates the storage in the dry year by one half of the reservoir's capacity. The owner of Wolford Mountain Reservoir, the Colorado River Water Conservation District, indicates that 2002-2006 is the 'critical period' for this reservoir. [SEE SOURCE FILE FOR FIGURE 4.3, WOLFORD MOUNTAIN RESERVOIR EOM CONTENTS DRY YEARS.] • The*

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	1. 100 acres of bluegrass sod will need to be replaced annually with either natural plants or Xeriscape and irrigated appropriately. 100 acres is larger in area than Denver's Cheesman Park or Bible Park. 2. All new homes and home sales will need to be inspected or audited for water efficiency; this amounts to approximately 10,000 homes per year. 3. Denver Water will need to contract with 350 commercial and industrial customers to achieve demand reductions. Many more business properties will undergo a conservation diagnostic visit under this measure even if the business is not a candidate to sign a water savings contract. 4. 5,500 customers will need to replace their inefficient washing machines with high-efficiency washers. If the 2006 participation is any indication of future success (Denver Water paid $1,590,600 to customers who replaced 7,953 washers) then this is a very achievable goal. **Tap-Smart Plan Measures** The measures in the first draft of this plan were derived from a combination of assumptions and predictions in the Decision Support System (DSS) model, from experiences of other water providers around the world, and from discussions with experts in strategy development. (The DSS Model is a huge EXCEL spreadsheet designed by Maddaus and Associates for use in water conservation program planning.) Those measures and costs were shown in Table 1. The measures in this Tap-Smart Plan have not changed significantly since the first draft of the Plan. Staff expanded the lower cost measures where possible. The Board has the flexibility to reduce or eliminate higher cost measures each year in the annual budget process. The expected costs and demand reductions are included as well as the calculated payback period for both the Board and the customer. The Board's costs are those paid through rebates and incentives, as well as the expense of implementing and administering the measures. Customer costs are the additional amounts for water fixtures and landscape changes that are not paid by the Board through rebates and incentives. The savings represent sustained, annual water use reductions. Rate increases will be sufficient to recover costs as required by the Charter of the City and County of Denver. The customer's payback period has been calculated for each measure and is shown in Appendix D. The customer payback period was calculated by comparing the customer specific costs of each measure and the financial savings the customer would receive through water, wastewater and energy bills. By using 50 percent less water with an efficient clothes washer the customer saves approximately $60 per year through water, wastewater and energy bills. The payback period is approximately 3.3 years ($200 costs / $60 savings per year). The payback period represented in Appendix D is the standard calculation in the industry. It does not, however, use the avoided cost of new supply in the calculation. 17	*discussion of "Need' under the P&N section states "Based on the IRP and recent events such as the 2002 drought…" [DEIS 1-1] Further, the discussion regarding 'The Reliability Need' states that "In a severe drought, even in a single, severe dry year, the Moffat Water Treatment Plant (WTP)…is at a significant level of risk of running out of water." [DEIS 1-2] IF these conditions are so critical to the P&N of the project, then the model hydrology used to evaluate the project should include the single, most severe dry year on record; 2002. Summary In our opinion the comparison shows that the DEIS may be significantly flawed in the representation of dry year condition and impacts to the streams in the Colorado River basin above the Kremmling gage. This highlights another example of why the model used to evaluate effects of the project needs to include the most extreme hydrologic conditions available. Even if the actual conditions experienced in 2002 were reflected in the DEIS dry year projections, the use of the average dry year does not allow for an understanding of the projected effects in comparison to known conditions.* **Response #767-21:** Please see the responses to Comment IDs 5217, 5199, 5220, and 5199. Table 5 compares historical data for 2002 to the dry year average for Current Conditions at the Vasquez Creek gage and Fraser River at Granby gage. Tables 3.1 through 3.5 show similar comparison of historical data for 2002 to the dry year average for Current Conditions and Full Use of the Existing System for several locations in the Fraser River Basin. Table 6 referred to in the comment indicates there are differences in the minimum one-, three and five year duration droughts for the PACSM study period versus the period from 1950 through 2002 and 1992 through 2002. The flows during the one, three and five year

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	Some of the conservation measures with the longest payback periods involve irrigation system efficiency or changes to landscapes. These are expensive changes to make. For example, changes in landscape cost approximately $3 per square foot. It may take between $5,000 and $10,000 to replace a lawn with Xeriscape on an average single family lot. Flexibility in the Tap-Smart Plan In the first draft of the Tap-Smart Conservation Plan, staff did not focus on minimizing the costs of the Plan. Staff gave the Board a menu of measures and their relative costs. Similarly, the expected demand reductions from rate increases were not calculated precisely. Staff simply ensured the Board that cost-of-service rate increases would be one of the tools used to reinforce the Tap-Smart goal. Staff has revised and expanded lower cost measures, to the extent possible, thereby increasing the expected demand reductions of the Tap-Smart Plan by approximately 2,000 acre-feet. The merits of the conservation measures may not rest solely on cost. The Board may want to evaluate the measures under different criteria and reduce measures, rather than completely eliminating them. **Rates** The 2007 Rates Schedule for potable water is an inclining block rate for residential customers and a seasonal rate for all others. Table 5 shows these rates for Denver Water customers. **Table 5 -- 2007 Denver Water Rates and Charges for Potable Water** **Single-Family Residential Customers:** Block 1: Monthly Billing/ Usage (Gallons) 0 - 11,000; Bimonthly Billing/ Usage (Gallons) 0 - 22,000; Rate per 1,000 Gallons $1.72 Block 2: 12,000 - 30,000; 23,000 - 60,000; $3.44 Block 3: 31,000 - 40,000; 61,000 - 80,000; $5.16 Block 4: Over 40,000; Over 80,000; $6.88 **Small Multi-Family Customers:** Duplexes through Five-plexes with a single meter 18	droughts for the period from 1950 through 2002 range from 3% to 20% less than the flows for similar droughts for the period from 1950 through 1991 with the biggest difference being the minimum one year flow. As stated in the response to Comment ID 5220, the PACSM study period does not have to include the driest year, or the driest three-year or five-year periods on record to accurately characterize hydrologic effects in a severe dry year or an extended drought. Additional graphs were added to FEIS Section 4.6.1 to present reservoir contents during the critical period to better demonstrate changes in a dry year. Differences in historical and modeled storage contents are to be expected as discussed above. The degree to which Antero, Cheesman, and Wolford Mountain reservoirs are drawn down depends on many factors including the severity of the dry year, the length of the drought, and conditions preceding the drought. ***Comment #767-29*** *(ID 5218)**:*** *Portrayal of Current Conditions The DEIS defines Current Conditions as: Current Conditions (2006) – The Current Conditions (2006) scenario reflects existing conditions (year 2006), including demands, facilities, agreements, operations, and administration of the Colorado and South Platte river basins. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. The purpose of the Current Conditions (2006) scenario is to model Denver Water's and other's existing water rights and facilities under the hydrologic conditions that existed throughout the study period (1947 through 1991). In addition, the operations of all existing reservoirs and diversion facilities are simulated for the entire study period, regardless of when they came on-line. [DEIS page 4-11] This methodology creates a 'modeled' current conditions that is not thoroughly explained in the DEIS. It appears to present an idealized depiction of current hydrology that would maximize water demands and water diversions*

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		throughout the Denver Water (DW) PACSM study period. The entire DEIS then presents information and analyzes the effects in comparison to this modeled "Current Conditions." However, the modeled 'current conditions' are frequently inaccurate compared to recent actual data. This can dramatically overstate the current conditions used in the modeling and severely understate the effects of the project on actual streamflow conditions. Below are several key examples that demonstrate this difference: **Response #767-29:** Please see the response to Comment ID 5199. ***Comment #767-30*** *(ID 5217)**:*** *Diversions: • Moffat Diversions Table H-7.1 presents the current level of Moffat Tunnel diversions as 63,799 af/yr. However, Denver Water's own records of Moffat Tunnel flows at the East Portal (attached) reflect an average tunnel outflow from (1984 – 2006) of 56,056 af/yr. Further, the diversion records maintained by DWR reflect an average tunnel delivery (SID 4655) of 57,293 af/yr for the same time period. It is difficult to assess the hydrologic and aquatic impacts due to the DEIS overstating the 'current' depletions from the Moffat project by roughly 7,800 af/yr (14%) on average. This dramatically understates the impacts from the additional diversions in comparison to Full Use Existing. • Gumlick Tunnel Similarly, the DEIS indicates on Table H-7.1 that the Current level of diversions from the Williams Fork basin through the Gumlick Tunnel are 8,853 af/yr, whereas the text on page 3-31 indicates that the current Gumlick Tunnel imports average approximately 5,100 af/yr. Based on monthly diversion records from DW (attached), the 1984-2006 diversions averaged approximately 4,930 af/yr. Therefore, the DEIS analysis overstates the actual current level of diversions from the Williams Fork basin by as much as 3,923 af/yr, or approximately 80%. Streamflow: • Fraser Basin Table 5, attached, presents several examples where the DEIS*

Block 1	0 - 15,000	0 - 30,000	$1.95
Block 2	Over 15,000	Over 30,000	$2.34

Monthly usage amount increases by 6,000 gallons and bimonthly usage amount increases by 12,000 gallons per additional dwelling unit up to five (5) dwelling units.

All Other Customers:

Winter	$1.89
Summer	$2.27

Along with these rates, the Board has a significant System Development Charge (SDC) or hook-up fee to make sure that growth pays its own way. The SDC is different for customers depending upon their predicted water use. All these financial incentives serve to encourage wise water use.

One aspect of the 2007 Rates schedule that needed more research was the potential impact on Home Owner Associations (HOAs) that irrigate common areas through an irrigation-only or single-family residential tap. There were some inequities identified in the plumbing and irrigation systems of these HOAs, so Conservation staff was assigned to contact over 240 of these groups and get the facts. This effort will be at least a two-year project. It will involve performing an irrigation audit, diagnosing water savings potentials indoors, locating all meters and taps associated with each account, and then offering various types of assistance to the HOA to achieve water savings. This HOA task was not part of the Tap-Smart Plan specifically, but has become the major focus of the Personal Water Consultant initiative to contact the highest-water-using customers. The expected outcome is that HOAs will improve their irrigation efficiency thus saving both water and money, and Denver Water will improve the accuracy of its records and the fairness in billing for these customers.

Final List of Selected Measures

After filtering over 480 measures down to two dozen that fit the criteria, the measures were apportioned into seven categories:

- City and County of Denver government programs, which includes irrigation practices, upgrades of fixtures and devices, and other activities to be determined after engineering analysis of potential water savings;
- Education and Outreach, which includes publications, demonstration gardens, the schools program, and presentations;
- Diagnostics, which includes conservation audits of indoor and outdoor water uses for residential, commercial and governmental customers;

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	• Rebates and Incentives, which includes buy-back contracts as well as rebates for a variety of water-saving devices and fixtures; • Rules, which includes those made by Denver Water, by local government and any enforcement deemed necessary by the Board; • Research, Monitoring and Evaluation, which includes analysis of existing measures to determine their effectiveness, and research into proposed measures to determine if they will actually be implemented by customers and really save any water; • General Administration of all the measures. The 2007 budget for the Tap-Smart Plan is shown in Appendix E. At least four different work groups within Denver Water are assigned to implement this Plan, and they will work with other employees, staff and contractors as necessary to achieve the goal. **Additional Considerations** **City & County of Denver Government Accounts** Staff has identified a large potential for water use reductions from City & County of Denver government accounts. Irrigation is the largest use of water by City government, and the measures listed in Table 6 show the biggest potential for reductions from irrigation. Staff proposes to help the City improve its irrigation systems and replace large areas of turf with low water using landscapes. The City's participation in the Board's Tap-Smart Plan will be a vital part of the Plan's success and is the most important factor for the early years. In his July 13, 2006 State of the City speech, Denver Mayor John Hickenlooper declared that the City government would be a role model of wise water use. This leadership initiative will encourage others to conserve and lend credibility to the Board's conservation efforts. Additionally, in September, 2006, Denver Water loaned a full-time water conservation expert to the City government for at least two years to assist in their conservation efforts. **Table 6 - City & County of Denver Measures** | Measure | Costs: Denver Water | Costs: City & County | Costs: Total | Reductions (AF) | 20	*inaccurately represents the current streamflow in the Fraser River basin compared to actual gage records. This table shows that the DEIS representation of modeled Current streamflow for the months of May – July in dry years can be 30% to 82% higher than the actual monthly streamflow for a dry year (2002). Similarly, the DEIS representation of Current flows for the months of May – July in wet years can be up to 288% lower than the actual recorded streamflow for these months in a recent wet year (1984). This indicates that the DEIS model representation of hydrologic conditions is inaccurate and misleading. This may dramatically overstate the remaining streamflow in a dry year (understate the impacts from the project) and understate the magnitude of diversions during wet years. [SEE SOURCE FILE FOR TABLE 5, COMPARISON OF AVERAGE MONTHLY STREAMFLOW ACTUAL HISTORICAL CONDITIONS VERSUS DEIS "CURRENT CONDITIONS" (ALL VALUES IN CFS)] • Colorado River The annual streamflow in the Colorado River below Windy Gap USGS streamgage has averaged 238,264 af/yr from 1984-2008. However, the DEIS Appendix H-7.1 indicates a modeled 'current condition' with an average annual streamflow of 155,653 af/yr, a difference of 82,611 af/yr. The DEIS may understate the actual current conditions by approximately 35%. Summary The DEIS analysis does not represent actual current conditions. The examples above show that the DEIS in fact overstates the current level of diversions, which results in understating the actual incremental change that will occur between current conditions, Full Use Existing conditions, and the Preferred Alternative. The DEIS analysis should be modified to accurately reflect existing conditions so that the true impacts of the action alternatives can be assessed.* **Response #767-30:** The purpose of the Current Conditions scenario is to represent hydrologic conditions that would occur over the 45-year study period under Current Conditions,

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		including facilities, operations, consumptive and nonconsumptive water rights, instream flow rights, demand levels, operating rules, and other water management considerations and preferences throughout the Upper Colorado River Basin. The Current Conditions is not intended to replicate historical flows at USGS gages and diversions at the Moffat, Gumlick, and Roberts Tunnels as suggested in the comment. The Current Conditions scenario accurately depicts current level of diversions and does not understate the incremental change that would occur with a Project on-line. It is not appropriate to compare Current Conditions model data to historical data to evaluate effects for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. One would expect potentially large differences when comparing model results with historic records. Modeled Current Conditions Moffat Tunnel diversions (63,799 AF/yr) are higher than average annual Moffat Tunnel diversions for the period from 1984 through 2006 because Current Conditions diversions reflect meeting an average annual demand for Denver Water of 285,000 AF/yr whereas, the average annual demand met during the period from 1984 through 2006 was less. In addition, there are likely differences in the averages because the periods compared are different lengths and may be hydrologically different. It is possible that the period from 1984 through 2006 is wetter overall than the period from 1947 through 1991, which could also partially explain why the historical average is lower. These reasons also apply to

Cooling Tower Monitoring	$82,000	$29,000	$111,000	205
Irrigation Check-Ups	2,233,000	16,891,000	19,124,000	1,015
Irrigation Efficiency Incentives	8,624,000	33,994,000	42,618,000	810
Fixture Replacement	2,319,000	331,000	2,650,000	472
Natural Areas Conversion	17,956,000	0	17,956,000	1,375
Total	$31,214,000	$51,245,000	$82,459,000	3,877

Conservation Measures for General Purpose Government

One of the most effective conservation measures according to conservation experts is to have local government be a role model for conservation. This leadership includes passing ordinances in support of conservation, prohibiting water waste, and implementing wise water uses in all of the city's facilities: parks, parkways, buildings, recreation centers, theaters, arenas, and health care facilities.

The Board does not have authority over the land use decisions of general purpose government. Therefore, the most effective way to get water savings in these areas is to have these government bodies pass their own rules. Staff recommends that Board members, the manager and executive staff members visit the decision-makers in each general purpose government in the Denver Water service area. The purpose of each visit would be to explain the value of conservation ordinances and urge their passage in each jurisdiction. This effort must include incorporated cities as well as county governments in the Denver Water service area to cover those customers in unincorporated areas of counties.

Some examples of these ordinances or rules are:

- **Prohibiting water waste.** Colorado water law already forbids the waste of water, but this does not address daily problems such as definitions and enforcement. The cities of Denver and Aurora have passed ordinances prohibiting water waste. Other general purpose governments should pass these ordinances and enforce them.
- **Requiring retrofit of all water-using fixtures and devices upon sale** or change of hands of any property. This would include some kind of inspection or certification that the buyer is getting the most water-efficient building and grounds possible.
- **Requiring submetering on all new multi-family dwelling units.** Denver Water staff urged the City and County of Denver to implement this ordinance and City Council passed the ordinance in 2003.
- **Requiring rain sensors on automatic irrigation systems.** The cities of Aurora, Castle Rock, Colorado Springs, Denver and Westminster already have this ordinance in place. General purpose governments in the Denver Water Service area need to have these requirements as well.

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	• **Requiring irrigation system efficiency averaging at least 65%** for all types of irrigation heads. This rule would address problems of uneven pressure, improper spacing of irrigation heads, improper drainage of heads, inadequate or improper irrigation maintenance, and waste of water that sprays onto sidewalks, streets, driveways and gutters. • **Requiring soil amendment before new landscape is installed.** When organic matter is incorporated into sandy or clay soils, the nutrient level increases and so does the water availability to plant roots. Research shows a 20% decrease in water needs of plants in well-amended soil. The Town of Castle Rock, the cities of Aurora and Westminster require soil amendment before any new landscape can be installed. • **Limiting the amount of cool-season turf grass that can be irrigated** on any given site. Cool season turf grasses such as Kentucky blue grass require 18 gallons of applied irrigation in addition to precipitation per square foot per growing season. Some cities restrict the number of square feet of this turf that can be installed. • **Requiring only sub-surface irrigation on medians 15 feet wide or less.** Since spray irrigation along roadways is almost always inefficient, this ordinance would require the water to stay on the landscape and off the gutters and streets. **Gearing Up Our Own Efforts** Although Denver Water is not a branch of local government, it is perceived by many customers and stakeholders as part of government. Therefore it is essential that Denver Water be a role model for water conservation too. Denver Water has implemented many conservation measures over the years, both supply-side and demand-side. Supply-side measures are defined here as those implemented by a water provider in its own facilities, usually those between the source of supply and the customer's meter. Demand-side measures are defined here as those efforts under the control of the customer and downstream of the customer's meter. In the supply-side category, there are highly visible and much less visible efforts. Leak detection is less visible. Each year, staff uses sonic measuring devices to check for leaks in the distribution system, covering the entire system about every three years. Significant leaks are repaired quickly; the others are scheduled for repair as time allows. Denver Water has one of the lowest unaccounted-for water (UAW) metrics in the nation. However, staff thinks these metrics can be improved even further. Therefore a thorough analysis of leaks, meter accuracy and analytical methods will be initiated in late 2007. Landscape improvements are more visible supply-side measures. Denver Water has been upgrading landscapes to Xeriscape on its own properties since 1992. During the summer of 2006, Denver Water hosted three anniversary parties to celebrate the 25th Anniversary of Xeriscape. Over 750 customers toured the world's first Xeriscape Demonstration Garden at the Administration building of Denver Water, and learned how they could have beautiful landscapes while saving water at their properties as well. 22	differences in Current Conditions versus historical Gumlick Tunnel and Roberts Tunnel diversions and flows in the Fraser and Colorado Rivers. For similar reasons, Current Conditions modeled streamflows in the Fraser River should not be compared with historical data. At some locations in the Fraser River basin, average monthly dry year streamflows for Current Conditions are higher than actual streamflows in 2002 for several reasons. The average monthly dry year streamflow is an average of the five driest years during the study period whereas 2002 is the driest year on record in the Fraser River Basin. Furthermore, bypass flows were reduced in 2002 whereas bypass flows were not reduced in two of the five years selected for the dry year average because the agreement to reduce bypass flows was not in effect until 1970. As discussed above, one would expect potentially large differences when comparing model flows with historic records. The comparison of flows at the St. Louis Creek gage shown in Table 3.1 of Bishop-Brogden Associates, Inc.'s letter is an excellent example of why modeled flows should not be compared to historical flows to assess hydrologic effects. Denver Water's diversions in the St. Louis Creek Basin did not commence until 1956. As a result, historical flows in 1954 and 1955 shown in Table 3.1 at the St. Louis Creek gage are considerable higher in May, June and July than in 1963, 1977, and 1981. This explains to a large decree why monthly averages of historical flows in 1954, 1955, 1964, 1977, and 1981 are much higher than historical monthly average flows in 2002 and the modeled dry year average monthly flows for Current Conditions and Full Use of the Existing System. Furthermore, historical flows in 1954 and 1955 are not reflective of Current Conditions since they do not reflect the effects of the existing Moffat Collection System diversions from St. Louis Creek. If modeled flows with the proposed Moffat Project on-line were compared to historical flows in 1954 and 1955,

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	There is an ongoing effort to upgrade toilets, urinals and faucets in all Denver Water's buildings to high-efficiency models. The cooling tower at Denver Water's Administration building operates at seven to eight cycles of concentration rather than the three to four cycles typical in other buildings in Denver. The car wash for the fleet vehicles recycles water. In 2008, the Conservation Section will do a thorough eco-audit of the entire institution to make sure Denver Water's buildings, grounds, and maintenance practices are water-efficient. **Tool Basket of Customer Information** The Communications Plan endorsed by the Board outlines the most effective ways for Denver Water staff to communicate to our customers and the media. There are several additional steps the Board could take to improve future direct communication with customers. These range from relatively simple and inexpensive measures to relatively costly and complex measures. All of these tools used together would greatly improve the Board's ability to communicate water conservation to customers. However, there are no measurable savings that can be attributed to these measures, either individually or collectively. Conversely, without adequate information distributed to customers, the other measures will fail miserably. With the exception of those with an extraordinarily high rate structure, no water provider's conservation program has succeeded without a good customer information and outreach program to support conservation. This tool basket could include: • A comparison of water usage printed on the bill • In-home meter reading devices distributed to each residential customer • Increased numbers of well-trained employees to handle customers' inquiries, inspect fixture installation, and educate customers about eliminating water waste • Monthly meter reading and billing • Web site water efficiency calculator that integrates the Run-Time Scheduler (a web-based computer-based irrigation schedule tool that can be customized for each irrigation zone on a site, www.watersaver.org) • New technologies as they become available and affordable A brief description of each of the tools follows: • **Water Bills.** A comparison of water use printed on the water bill would look somewhat similar to the bills currently distributed by XCEL Energy. The water bill would show not only water use and the bill for that billing period, but also the amount of water used by a comparably sized lot demonstrating excellent conservation. • **Instant Meter Reading.** An in-home meter reading device could be loaned to customers on request for four months. By the end of four months, most 23	the differences would reflect all the changes that have occurred since that time and not just the effects of the proposed Moffat Project. Similar to dry years, average monthly wet year streamflows for Current Conditions are lower than actual streamflows in 1984 at some locations in the Fraser River Basin because the average monthly wet year streamflow is an average of the five wettest years during the study period, whereas 1984 is the wettest year on record in the Fraser River Basin. In addition, the demand met in the five wettest years under Current Conditions is different than the demand met in 1984. Differences in the timing of filling Gross Reservoir can also result in differences in Current Conditions average wet year monthly flows versus historical flows in 1984. Modeled Current Conditions average annual flows in the Colorado River below Windy Gap are lower than historical average annual flows from 1984 through 2008 primarily because the average annual demands for several entities upstream of this location, including Denver Water and Windy Gap, have increased due to growth and are higher under Current Conditions. As a result, Denver Water's diversions and Windy Gap diversions under Current Conditions are higher on average, resulting in lower modeled flows below Windy Gap on average than historically occurred. Dry year flows are not misrepresented and the impacts of the Project are not understated in a dry year. There would be no additional diversions due to the Moffat Project in the single driest year in the study period as well as the average of the five driest years. Please see the response to Comment ID 5227. Differences between Denver Water's records of Moffat Tunnel flows at the East Portal versus records maintained by the Division of Water Resources (DWR) are most likely due to gage height calibration

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	customers will know their usage patterns and probably not be using the device any longer. However, for those who have never considered how much water they use, these devices can provide real-time feedback on water use, thus helping customers to use less water. • **Employee Outreach.** A larger force of Denver Water employees, who are routinely performing diagnostics of homes and businesses, inspecting the installation of efficient water fixtures and landscape materials, and watching for water waste, would change the relationship Denver Water has with its customers. This group could work solely on conservation activities, increase Denver Water's presence in the communities and become Denver Water's Conservation ambassadors. • **Monthly Billing.** An employee task force has studied the issue of monthly billing. No formal research has surfaced yet showing that monthly billing will save water; however the more frequent reminder will clearly keep conservation in customers' minds. There are hardware and software hurdles to be overcome before monthly billing can become a reality for all customers. • **Indoor Water Use Efficiency Calculator.** The Irrigation Run-Time Scheduler has been very popular with those who like to have a customized irrigation program for their property. A somewhat similar program could be developed for indoor single family residential use. A customer could type in the number of people in the home, the number of showers per day, loads of clothes washed per week, and have a customized printout of the daily or monthly gallons used and costs of indoor water use. This would be especially useful for those customers living in apartments or condos who do not receive a water bill directly from Denver Water. • **New Technologies.** As with the concepts in the first IRP, there will be new technologies developed that staff cannot presently foresee. Some of these will become commonplace and affordable by 2016. Others may become available more quickly. Staff intends to be open to study these new technologies or devices and bring recommendations to the Board as appropriate. **Master Meter Distributors** To assure that all Denver Water treated water customers participate in saving water, and that all suburban districts achieve at least the same reductions as in-City customers, the 24 Master Meter Districts must be included in the Tap-Smart Plan. While there are several different versions of contracts with these districts, Section 2.12 of all contracts requires that the districts comply with Denver Water's Operating Rules regarding implementation of the Plan. Other measures will be available to Master Meter customers such as rebates, audits or diagnostics, and rating system for new homes. **Fixed Contracts** 24	corrections and shift adjustments to the standard 15-foot Parshall flume rating. The State and DWR operate their own data recording devices at the gage. Occasionally operational conditions would cause the flume to deviate from its theoretical stage-discharge relationship. At the end of the water year, DWR staff takes all available data collected and make adjustments to daily mean flows by smoothing the application of any gage height calibration corrections and shift adjustments from gage visit to gage visit. This can cause differences between DWR and Denver Water records of flows recorded for the Moffat Tunnel at the East Portal. ***Comment #767-28*** *(ID 5216)**:*** *Use of a Future Baseline The DEIS analyzes the effects of the project by comparing the PACSM modeled "Full Use Existing System" (2016) and the PACSM modeled "Alternative 1a" (Preferred Alternative, 2030). This includes various assumptions regarding actual conditions at the start of the MCSP and dramatically minimizes the effects to the local resources compared to current conditions. There is limited information in the DEIS to compare the consequences of project alternatives to actual existing conditions. As noted above the DEIS fails to evaluate the large changes that occur between current conditions and the Full Use Existing System scenario. One key example is the Windy Gap Firming Project, which is assumed to be online by 2016 [DEIS 4-11 and App. H1-3]. By comparing the action alternatives to hydrologic conditions that include diversions from the WGFP, the DEIS understates the percentage change in stream flows below Windy Gap that would occur under each action alternative over actual existing conditions. For example, average annual flows in the Colorado River below Windy Gap under the Proposed Action are predicted to be 126,767 AF, a decline of 7,918 AF, or 6% compared to Full Use Existing System. DEIS Appendix H-7.1. However, compared to*

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	Denver Water provides some water to districts or municipalities through fixed-amount contracts. For most of these entities, Denver Water's contract provides only a small component of their water portfolio. Conservation by these customers would not reduce Denver Water's delivery obligation under the contract. Most contracts contain a provision stating that the conservation plan, or some reasonably similar effort, applies to the water leased from the Board. Because changes in the Board's conservation plan would be applicable to only a portion of an entity's water supply, it is not possible to determine the impact of such changes on the behavior of the entity. Staff would need to work with fixed-amount contractors individually to determine the effect of modifications to the conservation plan. In the fall of 2006, staff contacted every one of the Fixed Contract customers requesting a copy of their conservation plans. Of those who responded to the letter and/or to a subsequent phone call, six entities had conservation plans. More work is needed here. **Three-Days-Per-Week Watering Restriction** Many people have questioned the efficacy of saving water with a three-days-per-week watering restriction. Historically, water providers have used a three-day restriction to reduce the peak days during the irrigation season due to treatment plant capacity issues. A three-day restriction is effective for reducing the peak days; however, no studies show conclusively that a three-day restriction will reduce the total amount of water use. Staff believes that a three-day restriction will not inherently reduce water use. It is the message accompanying the restriction that is the driving factor. A strong conservation message such as the Board's "never more than three days," and "Use Only What You Need" should help to keep water use low. Staff has partnered with the City of Aurora to continue to study this issue. Aurora is on a mandatory three-days-per-week water restriction; therefore, the comparison between the two cities should be informative. **Research, Monitoring and Evaluation** Although monitoring and evaluation of conservation measures has occurred in the past, there is now a well-defined effort with staffing, budget and goals set. Monitoring of results achieved and evaluation of programs will be done by the General Planning Section of the Planning Division. The General Planning staff will act as a set of checks and balances for the Conservation Section staff. Both groups will cooperate with the Community Relations staff in producing an annual report of progress to the Board. General Planning and Conservation will produce quarterly updates for the Board and executive staff listing both activities and water savings. 25	*the modeled 'current' conditions of 155,653 AF¸ the change in flow is 28,886 AF/year, or 23%. This difference is more extreme in comparison to the actual current streamflow data described above.* **Response #767-28:** The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other reasonably foreseeable future actions based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other reasonably foreseeable future actions. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. Full Use of Denver Water's Existing System reflects the best available projections of demand and supply consistent with current standards of water resource planning. Full Use of the Existing System includes reasonably foreseeable future actions including growth in Denver Water's average annual demand to 345,000 AF/year, which Denver Water can achieve with their existing system. Denver Water's existing system is

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	Part of monitoring and evaluation is research into why measures might not be working as well as predicted. Using community-based social marketing tools, General Planning will be conducting focus groups and surveys of customers to find out the barriers and benefits of selected conservation measures. Based on the outcome of the research, the Tap-Smart team will revise measures to become as effective as possible. Each year, a new set of measures will be chosen for research. Another part of the research effort is getting the actual measurements of newly proposed measures and of pilot projects resulting from the focus groups. The General Planning staff will be analyzing this data as well. They expect to participate with others in research such as the new study of water use in new homes done in cooperation with the US EPA and other water providers across the US and Canada. Other research efforts will be determined based on results of evaluation of the measures in the Tap-Smart Plan. **Public Involvement Plan** The public involvement effort is outlined in detail in Appendix F. Guidance from the Colorado Water Conservation Board (CWCB) states that there should be a minimum of 60 days for public involvement before a water conservation master plan is finalized. Denver Water began its public involvement for the Tap-Smart Plan in March 2006 and continued it until April 30, 2007. The second phase began in September, 2006 with training Denver Water staff and consultants in community-based social marketing (CBSM). Ongoing training and public involvement will continue throughout the decade of this Tap-Smart Plan. Therefore, we believe that we have met and exceeded the guidance from the CWCB. The Public Involvement Plan includes meeting with stakeholders, key leaders in the community, colleagues, and customers. Over the last several years, Denver Water staff has participated actively with the colleagues in the Colorado WaterWise Council (CWWC) in its meetings and projects. These conservation professionals from around the state have offered many new ideas for measures, and have provided valuable insight into the predicted success or failure of new conservation measures. One of the CWWC projects was to develop a set of Best Management Practices (BMPs) in cooperation with the Metro Mayors' Caucus (MMC). Denver Water provided staff time and research for this project, with the goal of using the results in making Denver Water's own program more successful. Now that the BMPs have been accepted by the MMC, Denver Water is participating in the next CWWC project to create metrics for measuring the success of two of the BMPs. The first metric is to gather information on gallons per capita per day from all the entities represented in the MMC, establish a common formula or definition for GCD, and then to publish the aggregate SFGCD for the metro area. This will help demonstrate that people in this region 26	capable of meeting an average annual demand of 345,000 AF/yr, therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other reasonably foreseeable actions since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032). Please see the responses to Comment IDs 5217 and 5199. ***Comment #767-27*** *(ID 5215)**:*** *Water Demands The level of water demands presented in the DEIS shows a dramatic shift in annual increases in water demands prior to 2016. This appears to indicate a 'front loading' of demands that results in lowered impacts from the action alternatives. The DEIS demand timing is summarized below: Current (2006): 285,000 af/yr Full Use (2016): 345,000 af/yr 60,000 af/10 years = 6,000 af/yr (17% incr) Buildout (2030): 363,000 af/yr 18,000 af/14 years = 1,286 af/yr (5% incr) While the DEIS indicates that there will be conservation saving both before and after 2016, it is the remaining demands shown above that are modeled to reflect the effects on the resource. It is unrealistic that Denver Water's demands, and the expected diversions, will suddenly drop following 2016. Further, there is limited information in the DEIS to verify the relatively high level of demand projected between 2006 and 2016. The demands used to develop the new firm yield requirement should be re-evaluated to include the following considerations: • Levels of water conservation in dry times prior to any bypass reductions • Per capita uses since 2002 may be much lower than used in DEIS. In the years following the 2002, DW system has experienced a*

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	are making progress on water conservation. The other metric is to measure unaccounted for water loss due to system leakage. By having these metrics in place, Denver Water will be able to benchmark its own efforts more effectively. **Conclusions** The Tap-Smart Conservation Master Plan is the fourth revision of Denver Water's Conservation Master Plan since 1979. Water Conservation has been an ongoing effort at Denver Water since 1910. In 1979, the conservation effort was increased, and the result was the harvest of low-hanging fruit over the next 20 years. Appendix B contains the history of Denver Water's conservation programs from 1910 to 1999, and a list of current measures. The drought of 2002 to 2004 heightened awareness of customers and staff of the need to maintain conservation savings. In 2005 as a result of the Board's direction, the Conservation program was accelerated even more. Appendix C contains the background and research on selecting the measures for the Tap-Smart Plan. The sample Tap-Smart Plan in Appendix D has been designed to capture and sustain water use reductions that would bring system-wide customer use down to 165 GCD. This is equivalent to the conservation goal stated in the 2002 IRP. The IRP conservation goal in the 2002 report has two components: 57 percent of the savings are passive – requiring no effort from Denver Water - from natural replacement of indoor water use fixtures, and 43 percent comes from active conservation programs. To achieve sustained water use of 165 GCD with a decade of effort, Denver Water will have to accelerate the replacement of high volume toilets, showerheads, and faucets to more efficient fixtures that otherwise would have been replaced naturally. Staff has concluded that the desired acceleration of natural replacement savings cannot be achieved through current conservation measures. Regulatory measures or rebates that pay a high percentage of the cost of water fixtures are necessary to achieve the savings within ten years. There are many perspectives on the reasons to conserve water. People are motivated by different values at different times in their lives. Economic costs are just one of the reasons to conserve water. Some of the other reasons to conserve are shown in the pamphlet, "Why Conserve?" developed for the Board and included in Appendix G. **Historic Savings** Historic savings, prior to 2001, resulted in part from educational and informational conservation measures. These measures will have to continue if Denver Water is to maintain the historic savings. It is unclear whether further savings can be achieved through these types of measures. However, staff recommends that the 27	*level of 'demand hardening' that will be reflective of future conditions, not the per-capita demands experienced prior to the 2002 drought which is used in the DEIS. • 3,000 AF to Arvada – This recent contractual obligation, which increases DW's reported need for additional water, is IN COMPENSATION for providing one of the reservoir sites that is an alternative to this project. This overstates DW's needs, as the 3K AF to Arvada is contingent on DW realizing yield from MCSP. It is inappropriate to leverage up demands for a project in exchange for property that increases the likelihood of one of the project alternatives.* **Response #767-27:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project Alternative (2032). Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data from DRCOG, DOLA or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. "Demand hardening" is caused through conservation. As customers become more efficient in their water use, their ability to reduce consumption during a drought

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	Board hold the communications measure at the budgeted 2006 level, at a minimum. **Opportunities to Save Water** There are opportunities to save water in every type of water use and customer class. The measures suggested by staff target the greatest opportunities to save water. There are limited options available to Denver Water to affect two groups of customers' water use, Master Meter and Multifamily. Customers served by these types of accounts are largely shielded from the conservation messages Denver Water sends. However, Denver Water began offering rebates in 2006 to third-party customers being served by Master Meters. Also, the "Water Waste" section of Denver Water's Operating Rules applies to these customers. Unfortunately, Denver Water has little opportunity to advertise rebate programs or enforce operating rules to third-party customers. Some measures that may be effective with Master Meter and Multifamily accounts include: • water allocations enforced through rates or by other means; • sub-metering in multifamily accounts; and • Expanded operating rules for new or existing customers to require efficient water use. Staff must coordinate with Master Meter and Multifamily accounts to ensure savings goals are met. In early 2007, new commercial rebates were implemented and made available in Master Meter areas as well as the City, Total Service and Read and Bill districts. Appendix H lists rebates paid in 2006 and to April 30, 2007. **Monitoring and Evaluation** To be successful with the Tap-Smart Plan, staff will have to increase its monitoring and evaluation efforts. Using 2001 water use as a baseline, Denver Water customers will have to reduce demand by 2 percent each year for 10 years. With a short time-frame of 10 years, unsuccessful measures will need to be identified and replaced quickly. Monitoring and evaluation will include several techniques. First, actual water savings and costs from specific conservation measures will be monitored. Second, staff will continue to gather more information about different types of water use, customer groups and customer classes. Third, measures will be evaluated against each other to determine the most effective measures. Fourth, 28	under the same set of drought restrictions becomes impaired. A simple example is lawn watering efficiency. Denver Water's Stage II drought restrictions are designed to reduce lawn watering significantly but keeps lawns alive. If customers become more efficient in their lawn watering through conservation, the closer their use is to just keeping lawns alive; therefore, they would not be able to reduce as much in a drought. If the conservation savings are used to serve new customers, then the water is not available to buffer against a future drought. If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, the Corps believes it is a reasonable and conservative approach to include the 3,000 AF in the predicted 2032 demand in the analysis. ***Comment #767-26*** *(ID 5214)**:*** *Model Study Area The modeling study area extends only to Kremmling because the change in annual flow at this location < 10%. However, this threshold is based on changes in total annual volume. The changes in flow at this location are greater than 10% in the months that diversions are occurring: • Colorado River near Kremmling (based upon Tables H-3.32 and H-1.36) percent change from Current to Alternative 1a: o Average years May: -12% June: -18% July: -13% August: -11% o Dry years All months of diversion less than 10% o Wet years May: -16% All other months of diversion less than 10% This indicates that the DEIS may understate the area of impact from the MCSP. The DEIS should be revised to assess the changes in streamflow for the months of diversions, not based on total annual volume.*

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	staff will monitor the durability of savings achieved through each conservation measure by tracking participating customer use. Staff anticipates the costs of monitoring and evaluation will be between 5 percent and 10 percent of the annual conservation program costs. **Summary and Commitment** Staff has revised the 2006 drafts of the conservation Master Plan into this Tap-Smart Plan that accelerates the 2050 conservation goal to 2016. By maximizing lower cost measures and refining the expected savings from rate increases, staff has found an opportunity to reduce the conservation effort by 4,000 AF obtained through other means. As the Board and staff evaluate the measures to be reduced or eliminated, cost may not be the only consideration. Each year as the Board considers the budget requests for implementing this Plan, the Board will have the opportunity to address the other considerations. This is the fourth revision of the Conservation Master Plan since 1979. Staff believes this revision has the most research, the most up-to-date analysis, the best public involvement model and the appropriate staffing and budget to achieve the goals set by the Board. Each year during the budget season, the annual plans will be presented to the Board for approval. Staff will show how the annual plans move the community toward the conservation ethic and metrics as stated by the Board. Additionally, the Tap-Smart Plan will be revised at least every five years to incorporate not only the results of monitoring and evaluation of existing programs, but also new research, new technologies and new developments in the socio-economic climate of the Denver Water service area. The revisions will include involving Denver Water retail and wholesale customers, stakeholders and other key leaders in the community. Staff is totally committed to achieving the goals in this Tap-Smart Plan, and as revised periodically by the Denver Board of Water Commissioners. The first evidence of that commitment is the 2007 budget for the Tap-Smart Plan shown in Appendix E. In the fall of each year, staff will prepare a budget proposal for the next year and ask the Board's approval of the budget and interim goals. The annual budget will need to increase over the years to achieve the goal set by the Board. Staff is committed to gathering the appropriate information, people and dollars to achieve the goal, but no more than we need. 29	**Response #767-26:** For the DEIS, the downstream extent of the study area was initially based on the location where average monthly flow changes under the action alternatives would be less than 10% compared to Full Use of the Existing System. The exception to the downstream extent includes evaluation of recreation and special status species in the 15-Mile Reach. Resource evaluations were conducted to determine impacts near Kremmling and assess the validity of the downstream study area extent. Results of the resource evaluations based on a comparison against Full Use of the Existing System indicate effects due to the Moffat Project would be negligible to minor along the Colorado River at the Kremmling gage and would continue to diminish downstream with tributary inflows. Therefore, extension of the study area further downstream was not warranted based on the results of the resource evaluations. The resource evaluations were relied on to justify the criteria used to define the downstream extent of the study area. The study area was re-evaluated in the FEIS on a resource by resource basis to determine whether extension of the area was warranted based on the total environmental effects of the Moffat Project in combination with other reasonably foreseeable future actions. The resource evaluations did not rely solely on monthly and annual averages. Please see the response to Comment ID 5199. ***Comment #767-18*** *(ID 5213)**:*** *Shoshone Curtailment DW maintains an agreement with Xcel Energy that allows for the relaxation of the Shoshone hydropower water rights call under certain conditions [DEIS 5-20] The Shoshone call causes significant changes in the water operations in the upper Colorado River basin by causing the curtailment of water diversions, changes in storage operations, increases in exchanges, etc. The DEIS reports that*

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	 30	*DW conducted an analysis that shows that the relaxation "may have been invoked in about 8 to 10 years during the period 1947 through 2002, or roughly 1 out of every 6 or 7 years." [DEIS 5- 24]. The DEIS contains a DW estimate of the 'Historic Gains' from the call relaxation that occurred in 2003 and could have occurred in 2004 on Table 5-5. The 'Gains' summarized in this table average over 24,000 af/yr. This is a large volume of water that will modify the existing and projected hydrology in the basin that is not included in the model. While not described in detail the DEIS, the relaxation is likely to happen during dry years which may occur over several back-to-back years, which may change the flow related resource effects described in the DEIS. Further, the DEIS notes that one of the effects of the Shoshone relaxation is to increase both the water stored in Williams Fork Reservoir and the water available for diversion at Roberts Tunnel. This will cause an increase in the amount reusable effluent available to DW, which is similarly not included in the model nor in the quantities of unused reusable supplies summarized in Table 2-9. While it is recognized that there are difficulties in modeling the relaxation criteria, the magnitude of the potential changes needs to be included in the modeling of the hydrologic effects. DW's agreement with Xcel expires in 2032, unless extended, which is beyond the model forecasting period of 2030.* **Response #767-18:** The total gains from the Shoshone call reduction in 2003 and 2004 averaged over 24,000 AF/yr, however, the gains to Denver Water's facilities were less. Note that in 2004 the Shoshone call was reduced because the plant was down for scheduled maintenance as opposed to a relaxation of the call per the terms of the agreement with Denver Water. Denver Water diverted an additional 4,739 AF in 2003 and 14,141 AF in 2004 due to the Shoshone call in those years. While Denver Water's diversions may increase under a Shoshone

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	McKenzie-Mohr, Douglas, Ph.D. Beyond Brochures: community-based social marketing workshop. Beginning Level (September 2006) and Advanced Level (February, 2007). Metro Mayors Caucus. 2005. Best Management Practices for Water Conservation and Stewardship. www.metromayors.org downloaded April 1, 2007. O'Boyle, Jamie & King, Margaret J., 2002. The Unconscious Drivers of Choice: How People Make Apparently Unique Decisions. The Center for Cultural Studies and Analysis, American Values Series. www.culturalanalysis.com Pacific Institute for Studies in Development, Environment, and Security, January, 1999. Sustainable Use of Water; California Success Stories, Oakland, CA. Rocky Mountain Institute, The Water Program, 1991. Water Efficiency, A Resource for Utility Managers, Community Planners, and Other Decisionmakers, Snowmass, CO. Saving Water Partnership (Seattle and Participating Water Utilities). 2005. Regional 1% Water Conservation Program, 2004 Annual Report. Sherman, Sharon and Boyle, Tracy Fagin. GBSM Consulting. Personal communications at least weekly between summer 2006 and March 2007. US EPA Office of Water, August, 1998. Water Conservation Plan Guidelines. EPA-832-D-98-001. Vickers, Amy, 2001. Handbook of Water Use and Conservation: Home, Landscapes, Business, Industries, Farms. WaterPlow Press, Amherst, MA. Water Conservation Alliance of Southern Arizona, 2001. Evaluation and Cost Benefit Analysis of Municipal Water Conservation Programs, University of Arizona, Tucson, AZ. Water Resources Strategy for the Melbourne Area Committee, October, 2002. Planning for the Future of Our Water Resources, 21st Century Melbourne: A WaterSmart City, Melbourne, Australia. 32	amount of reusable effluent included in Alternatives 8a and 10a. The firm yield generated from reusable supplies was limited to 5,000 AF/yr due to the additional costs associated with treatment and conveyance, potential water quality issues with blending those supplies with Moffat Collection System water, and the projected amount of gravel pit storage that would be available to firm those supplies. The yield associated with the additional water diverted during a Shoshone call reduction and the increase in reusable supplies is not considered firm yield since the Shoshone agreement is not permanent. The Shoshone call reduction per the agreement between Denver Water and Xcel Energy (Shoshone Agreement) is analyzed as a reasonable foreseeable action in DEIS Section 5.3.1 under the subheading Reduction of Xcel Energy's Shoshone Power Plant Call. The analysis of the Shoshone call reduction describes the potential frequency and magnitude of hydrologic effects when the call reduction is in place. Denver Water diverted an additional 4,739 AF in 2003 (voluntary call reduction) and 14,141 AF in 2004 (maintenance) due to the relaxation of the Shoshone call in those years. While Denver Water's diversions may increase under a Shoshone Call reduction, diversions with or without the Moffat Project would be the same since available storage capacity in Gross Reservoir would not be a limiting factor in dry years when the Shoshone Call reduction would be invoked per the Shoshone Agreement. The Shoshone Agreement would provide limited additional water to the Moffat Collection System because Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. Modeled streamflows in the Fraser River Basin would remain essentially the same with or without the Shoshone call reduction since Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority

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	33	diversions in the Moffat Collection System. Modeled streamflows along the Colorado River downstream to the confluence with the Williams Fork River would also be similar with or without a Shoshone call since diversions at Windy Gap are more often constrained by the instream flow requirements below Windy Gap as opposed to the Shoshone call. Windy Gap did not divert any additional water when the Shoshone call was off in 2004 which is considered typical of Windy Gap benefits during call reductions. While Windy Gap gained more water in 2003 due to the Shoshone call relaxation, the supply available to Windy Gap was higher in 2003 than it would likely be in most years the call is relaxed. Late-season snow increased runoff significantly in 2003 which resulted in a considerably more water available for Windy Gap pumping than would normally be the case when the call is relaxed per the terms of the current agreement. ***Comment #767-20*** *(ID 5212)**:*** *PACSM Detail The DEIS does not contain sufficient detail regarding the projected effects for the stakeholders in the source area basins to understand and evaluate the anticipated effects from the proposed project. The general public and the potentially impacted parties do not have access to PACSM, the underlying assumptions and operating criteria in the model are not provided in the DEIS. The PACSM model should be made available for review and analysis to both the COE and the potentially affected stakeholders, or detailed output from the model runs needs to be provided to the stakeholders.* **Response #767-20:** The projected effects on stakeholders in the source area basins and the associated socioeconomic effects of shortages that are expected to occur between Current Conditions and Full Use of the Existing System are described in FEIS Chapter 4. Potential impacts on water providers attributable to future bypass reductions

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	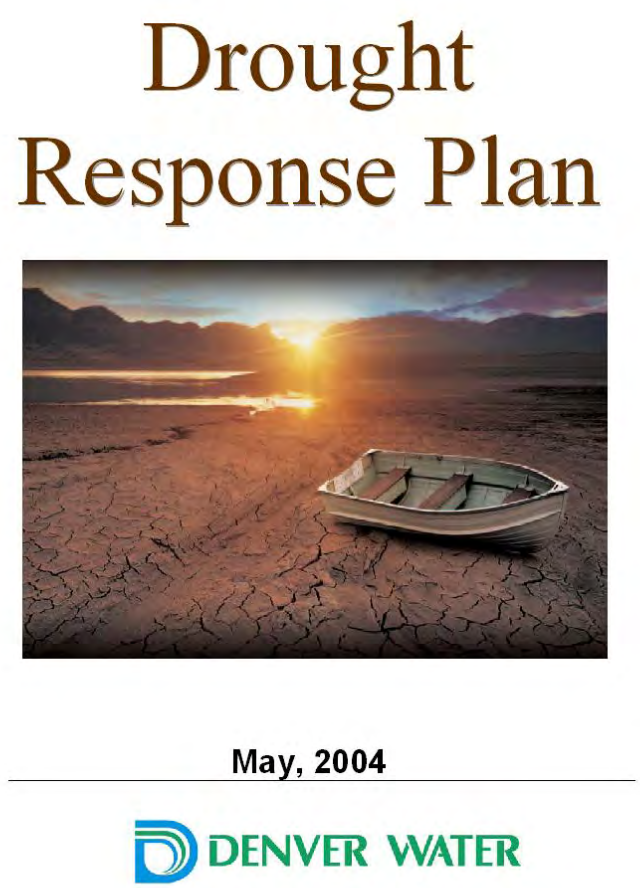	are also discussed in FEIS Chapter 4. The only additional shortages expected to occur in Grand County due to the Proposed Action are for Grand County Water and Sanitation District. The additional average annual shortage of 6 AF of water for one water provider with a Moffat Project on-line was addressed in FEIS Chapter 5. This incremental shortage represents a small contribution to the total effects described in FEIS Chapter 4. In a letter dated May 18, 2009, Grand County provided comments for the Moffat Collection System EIS on several PACSM-related documents. The Corps' response to that letter dated July 19th included electronic copies of numerous documents and operating memoranda provided by Denver Water, which addressed specific requests for information by Grand County. The Corps believes that the information provided to Grand County in addition to the following PACSM-related documents are sufficient to assess the adequacy of PACSM and the related predictions regarding water availability and hydrologic impact. • Memo dated December 30, 2003, re: Summary of Phase 1-Task 3, Moffat Project • Memo dated March 11, 2004, re: Final Review of PACSM Modifications • Memo data May 8, 2006, re: Review of Lower South Platte River Extension to PACSM • Memo dated November 29, 2006, re: Review of Modifications Made to PACSM to Reflect the Baseline Scenario and EIS Alternatives In some instances, information requested by Grand County was not obtained by the Corps' consulting team from Denver Water for the purposes of the EIS. That information was not used to support conclusions in the DEIS, therefore, it was not provided to Grand

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	TABLE OF CONTENTS *LIST OF APPENDICES* ..... *4* *EXECUTIVE SUMMARY* ..... *5* Triggers ..... 6 Drought Response Program ..... 6 Recommended Responses to Stage 1 Drought ..... 8 Recommended Responses to Stage 2 Drought ..... 8 Recommended Responses to Stage 3 Drought ..... 9 Recommended Responses to Stage 4 Drought ..... 9 Public Outreach ..... 9 Internal Communication ..... 9 *INTRODUCTION* ..... *10* Drought Response Plan History ..... 11 Drought Response Plan Components ..... 11 Defining Drought ..... 12 Firm Yield ..... 12 Long-term Conservation Efforts ..... 13 *TRIGGERS* ..... *15* Societal Effects ..... 16 Water Supply Triggers ..... 17 Triggering Action: To Wait or Not To Wait? ..... 19 Risk Associated with Forecasts ..... 20 *DROUGHT RESPONSE PROGRAM* ..... *22* Increasing Water Supply ..... 23 Decreasing Water Demand ..... 24 Use of Water Not Provided by Denver Water ..... 29 Stage 1 Drought Response ..... 30 Stage 2 Drought Response ..... 32 Stage 3 Drought Response ..... 36 Stage 4 Drought Response ..... 40 *PUBLIC OUTREACH* ..... *41* Communication During Drought ..... 42 Outline for a Drought Communication Plan ..... 43 Customer Survey ..... 43 Communication with Interest Groups 44 2	County. The public may come to Denver Water and use PACSM within the terms and conditions of a disclaimer, therefore, the Corps does not require Denver Water to release an executable version of PACSM to the public. An independent review of PACSM was conducted for the Moffat Project EIS, which concluded that PACSM is adequate for the modeling purposes of this EIS and can be relied on to provide hydrologic information (Boyle 2003, 2004). As a component of the UPCO, an additional independent review of PACSM was conducted. That review concluded that the model adequately simulates the hydrology, major water rights and the operations of major water storage and diversion projects within the Colorado River Basin for the purpose of that multi-agency study, which addresses long-range water supply planning for numerous West Slope entities in Grand and Summit counties (UPCO PACSM Review Committee 1999). ***Comment #767-25*** *(ID 5211)**:*** *Use of Averages vs Detail The DEIS displays nearly all hydrology information in terms of average monthly streamflows, diversions, and reservoir outflows in Appendixes H-3 and H-6. This level of output may be sufficient to demonstrate the general level of proposed diversions; however it is completely insufficient to understand the effects of the MCSP on the source area. The presentation of hydrologic effects using monthly averages obscures and minimizes the actual variations and extremes that the Moffat Project will cause. For example, the actual recorded Moffat Project diversions from DWR show that the minimum and maximum diversions since 1984 are 24,666 af/yr and 92,226 af/yr, respectively, showing a dry-to-wet year range of over 67,500 af/yr (73% of the maximum diversion). Whereas Table H-7.2 and H-7.3 show that the average diversions in dry and wet years are*

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	Other Front Range Water Providers ..... 44 Comments from the Public ..... 44 *INTERNAL COMMUNICATION* ..... *45* Drought Response Committee ..... 46 Executive Drought Committee ..... 47 Drought Compliance Committee ..... 47 Drought Ambassadors Program ..... 47 *SUMMARY* ..... *48* Watching for Drought 49 3	*currently 52,739 af/yr and 57,343 af/yr, respectively, showing a dry-to-wet year range of only 4,600 af/yr (8% of the maximum diversion shown). Table 5 also shows the differences during the principal diversion months (May – July) between the modeled average flow in dry or wet years compared to actual streamflow during dry and wet years.). Tables 6.1 through 6.4 display the effects of using the five-year average for wet and dry years on the Fraser River near Winter Park rather than displaying the full range of streamflows in a dry or wet year. For instance, modeled current conditions (using UPCO) in May of the five wettest years range from monthly average values of 8 cfs to 109 cfs (as seen in Table 6.1). However, the DEIS only presents the average of the five wettest years is equal to 33 cfs (as seen in Table 6.1). Tables 6.1 through 6.4 demonstrate how misleading and inaccurate the use of averages can be compared to actual data projections. The COE, as well as the resource managers for the basin, are going to need to understand, at a minimum, the following types of information: [SEE SOURCE FILE FOR TABLE 5, COMPARISON OF AVERAGE MONTHLY STREAMFLOW ACTUAL HISTORICAL CONDITIONS VERSUS DEIS "CURRENT CONDITIONS" (ALL VALUES IN CFS)] [SEE SOURCE FILE FOR TABLE 6.1, UPCO MODELED CURRENT CONDITIONS – WET YEAR FRASER RIVER NEAR WINTER PARK TOTAL STREAMFLOW (AF).] [SEE SOURCE FILE FOR TABLE 6.2, UPCO MODELED ALTERNATIVE 1A – WET YEAR FRASER RIVER NEAR WINTER PARK TOTAL STREAMFLOW (AF).] [SEE SOURCE FILE FOR TABLE 6.3, UPCO MODELED CURRENT CONDITIONS – DRY YEAR FRASER RIVER NEAR WINTER PARK STREAMFLOW (AF).] [SEE SOURCE FILE FOR TABLE 6.4, UPCO MODELED ALTERNATIVE 1A – DRY YEAR FRASER RIVER NEAR WINTER PARK STREAMFLOW (AF).] • Daily, monthly and annual changes in streamflow • Frequency and duration of changes to the peak*

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	LIST OF APPENDICES Technical and background information used to prepare this Drought Response Plan is available in the Drought Response Appendix Document. ◇ Live on Inflow Analysis ◇ Cloud Seeding ◇ Recycle Water ◇ Customer Response Survey ◇ Water Allocation Program ◇ Weather Model ◇ Demand Hardening ◇ 2002–2003 Drought Timeline ◇ Estimated Savings ◇ Lessons Learned During the 2002–2003 Drought ◇ Drought Recurrence Intervals ◇ History of Water Use Restrictions ◇ Supply Augmentation Alternatives ◇ Reducing Deliveries to Outside City Contracts 4	*flushing flows • Frequency and duration of minimum or dry year flows • Increase in the number of days per month that streamflows will only be maintained at the specified USFS bypass requirements • Extent of daily, monthly and annual changes in reservoir levels* **Response #767-25:** Please see the responses to Comment IDs 5208, 5217, 5199, and 5227. Additional information on flushing flows and high flows was added to the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Additional information was added to the FEIS on the increased frequency and duration of dry year conditions and daily flow changes during a sequence of dry years followed by a wet year. Additional information was added to the FEIS on bypass flow reductions including the time of year and at which location bypasses would be reduced and potential impacts on water providers attributable to future bypass reductions. Information was also included regarding the increased frequency, duration and time of year that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up. ***Comment #767-24*** *(ID 5210)**:*** *Changes in Frequency and Duration of Dry Year Conditions The DEIS recognizes that Moffat Project*

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	EXECUTIVE SUMMARY 5	*diversions would occur in average and wet years and that "typically additional diversions would be greatest in wet years following dry year sequences" [DEIS at 4-5]. Thus, there will be more frequent years where stream conditions during diversions will look like dry years and more back-to-back dry year conditions. Further, the extent to which the proposed project will result in converting historical wet years into average years, or average years into dry years, are not disclosed in the DEIS. The DEIS only estimates hydrologic changes during dry, average and wet years in isolation. The DEIS does not present any detailed information regarding changes to the frequency and duration of dry years. Using the same PACSM output completed for the UPCO study, an estimate can be of this type of information. • Frequency of Dry Years The actual streamflow records for the Fraser River at Winter Park streamgage were ranked based on annual volume, and a 'dry year' was assumed to be any year in the bottom 25th percentile (similar to the approach used to determine dry years for both the PBO for the Colorado River endangered species and for the current Wild & Scenic alternative management plan being developed by number parties, including DW). This resulted in a 25th percentile flow volume of 7,124 af/yr at this location. As shown on Table 7, historically 12 years out of the 45- year PACSM study period were considered 'dry years.' Using the UPCO hydrologic output for the same location shows that, following completion of the MCSP, the number of dry years will increase to 27 years out of 45. This represents a 225% increase in the number of dry years following completion of the MCSP compared to historic conditions. [SEE SOURCE FILE FOR TABLE 7, COMPARISON OF TOTAL ANNUAL VOLUME AND FREQUENCY OF DRY YEARS FRASER RIVER AT WINTER PARK.] • Duration of Dry Years This analysis also shows that the duration and recurrence of back-to-back dry years will increase dramatically under the proposed action. Actual gage data for the 1947-1991*

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	EXECUTIVE SUMMARY ***Denver Water's goal for drought response is to preserve the quality of public life and economic activity to the extent possible in the face of water shortage.*** Droughts, a natural phenomenon, occur with unpredictable frequency and variable intensity. During drought, flows into Denver Water's reservoirs may be below normal, causing customers to have to reduce their typical water use. In addition, weather conditions in Denver Water's service area may be drier than normal and may stress vegetation. This Drought Response Plan is intended to assist the Denver Board of Water Commissioners in making policy decisions during times of drought and watering restrictions. The current plan, which incorporates lessons learned during the 2002–2003 drought in Denver Water's service area, will be updated regularly to ensure that it addresses current conditions. The plan approaches drought response from four perspectives—triggers (which indicate the severity of a drought), drought response measures, public outreach, and internal communication. **Triggers** Actual water supply and supply projections trigger drought response. The severity of the water supply picture determines the stage of drought declared and the corresponding level of response. The Drought Response Plan recommends a progressive response to worsening drought conditions. Recommended drought response measures are aimed at reducing water use by varying percentages, based on predicted reservoir storage. Each set of responses is triggered by expected or actual reservoir storage on July 1 of any given year. (July 1 was chosen as the trigger date because storage in Denver Water's system usually reaches its annual maximum around that date.) Four stages of drought, each signaled by a specific storage level trigger, are designated: Drought Stage — Trigger Stage 1 — Reservoirs are less than 80% full Stage 2 — Reservoirs are less than 65% full Stage 3 — Reservoirs are less than 40% full Stage 4 — Reservoirs are less than 25% full July 1 storage levels are forecast monthly from February through June each year. These forecasts consider past, present and future conditions in Denver Water's watersheds. The closer the forecast date is to July 1, the more accurate the forecast. Even the April forecast involves a high degree of uncertainty because spring (April through June) precipitation, still unknown, can dramatically affect July 1 reservoir storage levels. **Drought Response Program** In 2002, the Board of Water Commissioners adopted a policy stating that Denver Water's goal for drought response is to preserve the quality of public life and economic activity to the extent possible in the face of water shortage. The Drought Response Plan outlines specific 6	*PACSM hydrology period shows that there have historically been a total of four sets of at least two back-to-back dry years, using the same 25th percentile of flows described above, with the longest period being four dry years in a row. The UPCO results show that, following completion of the Moffat Project, the Fraser River at the Winter Park gage will have seven sets of at least two back-to-back dry years, with the longest duration being eight years in a row (see Table 7). [SEE SOURCE FILE FOR TABLE 7, COMPARISON OF TOTAL ANNUAL VOLUME AND FREQUENCY OF DRY YEARS FRASER RIVER AT WINTER PARK.] The DEIS needs to clearly describe this type of information for many locations in the source basin in order to fully evaluate the projected hydrologic changes and the environmental and other consequences of these changes.* **Response #767-24:** Additional information was added to FEIS Sections 4.1 and 5.1 on the increased frequency and duration of dry year conditions and daily flow changes during a sequence of dry years followed by a wet year. Please see the response to Comment ID 5208. ***Comment #767-23*** *(ID 5209)**:*** *Change in Peak flows Peak flows during the runoff season may be critical for providing flushing flows to maintain aquatic habitat and channel maintenance flows that help to maintain the connection between the channel and the floodplain and transport sediment (Rathburn et. al, 2009; Pitlick and Wilcock, 2001). Figures 1 – 3 illustrate the magnitude of the hydrologic manipulation to the upper Colorado River basin over time (Figures 1 – 3 illustrate the average daily flow only). The DEIS does not provide sufficient information regarding the changes to peak flows to fully evaluate the impacts to the fluvial systems. Further, the DEIS does not provide any information regarding changes to*

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	measures designed to maximize available water supplies and minimize water use. Because every drought is different, the Board will adjust and refine drought response measures based on actual conditions. Denver Water's prime response to drought is to budget water use so supplies will be available for the most essential uses. The water use restrictions imposed during the 2002–2003 drought indicated that no single "silver bullet" was effective at encouraging all customers to reduce water use. Instead, a "basket of programs"—restrictions, surcharges, enforcement, incentives, and monitoring and evaluation—is recommended to create an overall atmosphere that encourages water savings. ***Restrictions*** The Board has adopted a set of principles to guide the development of drought restrictions: ➢ Avoid irretrievable loss of natural resources. ➢ Restrict less essential uses before essential uses. ➢ Affect individuals or small groups before affecting large groups or the public as a whole, allowing as much public activity as possible to be unaffected. ➢ Minimize adverse financial effects on the community. ➢ Eliminate water waste. The basic response to a Stage 1 Drought is voluntary measures; to a Stage 2 Drought, mandatory restrictions; to a Stage 3 Drought, a general prohibition on lawn watering; and to a Stage 4 Drought, rationing of water supplies for essential uses. Because Stage 2, Stage 3 and Stage 4 Drought restrictions are mandatory, they must be incorporated into Denver Water's Operating Rules, where they become enforceable pursuant to the Denver Charter, the Denver Revised Municipal Code and provisions in Denver Water's water service agreements and water leases. **Drought restrictions should not be confused with ongoing water conservation efforts.** Restrictions may be harsh, cannot always be fair, and are not intended for long-term use. Water-dependent businesses will be negatively affected by water use restrictions. **Denver Water encourages water-dependent businesses to develop their own Drought Response Plans to guide them through periods of drought and restrictions.** ***Surcharges*** During drought conditions, Denver Water must confront three overriding objectives: (1) to quickly reduce the volume of water used by its customers, (2) to maintain adequate revenues to meet its financial obligations, and (3) to consider the opposing needs of existing demand and growth. Drought pricing can be an effective tool in managing these objectives, and drought surcharges must be considered as part of an overall demand reduction and financial stabilization program. ***Enforcement*** Drought monitors enforce the drought restrictions and water waste rules. **The goal of the drought monitors is to help customers comply with the rules, not merely to penalize violators.** 7	*the peak flows from Current Conditions to Full Use Existing System. While the Appendix H-4 does provide average daily hydrographs, there are too many alternatives shown on each plot to determine the actual change in streamflow. [SEE SOURCE FILE FOR FIGURE 1, FRASER RIVER NEAR WINTER PARK AVERAGE DAILY STREAMFLOW.] [SEE SOURCE FILE FOR FIGURE 2, COLORADO RIVER AT HOT SULPHUR SPRINGS AVERAGE DAILY STREAMFLOW.] [SEE SOURCE FILE FOR FIGURE 3, BLUE RIVER BELOW DILLON AVERAGE DAILY STREAMFLOW.] The DEIS does present a written description of the magnitude of peak flow reduction under the preferred alternative, however it does not provide any context regarding the actual streamflow changes at the time of the reduction. Table 8 presents an analysis of the maximum peak flow reduction that may occur by comparing the maximum daily flow reduction indicated in the text of the DEIS to the maximum peak daily historical streamflow from the available gage data at several locations in the upper basin. While the DEIS does not provide any information regarding the timing of the peak flow reduction, it would be reasonable to assume that it occurs at or near the time of peak available streamflows. Table 8 shows that the peak streamflow at five locations in the watershed could be reduced by as much as 78% compared to historic streamflow. This is a significant reduction in peak streamflows that could have a serious effect on the flushing flows necessary for a healthy aquatic habitat. [SEE SOURCE FILE FOR TABLE 8, COMPARISON OF MAXIMUM DAILY ACTUAL HISTORICAL STREAMFLOW AND PERCENT REDUCTION DUE TO MOFFAT EXPANSION (ALTERNATIVE 1A AND NO ACTION).] • As shown in Table 8, maximum daily streamflow under Alternative 1a is reduced by as much as 78% from historical maximum daily peak streamflow for the locations shown. See DEIS Appendix H-6 for additional locations. • From the tables in the DEIS, it is*

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	Incentives To encourage immediate water savings during a drought, Denver Water may develop incentive programs such as rebates, educational programs that teach water savings skills, and clinics on drought-tolerant landscaping and watering practices. ***Monitoring and Evaluation*** Denver Water's staff will begin monitoring and evaluation activities as soon as the Board declares a drought. Water savings will be tracked and compared with normal water use and weather-adjusted expected use. **If water use is not being reduced, modifications to the drought response efforts may be recommended.** **Recommended Responses to Stage 1 Drought** A Stage 1 Drought is triggered by actual or expected July 1 reservoir storage of 80 percent or lower. The goal in a Stage 1 Drought is to reduce water use by 10 percent. Declaration of a Stage 1 Drought is meant to warn customers that water levels are significantly below average and that continued dry weather could trigger a Stage 2 Drought. Recommended responses to a Stage 1 Drought include: ➢ Set the tone for a dry irrigation season. ➢ Reduce water demand to prevent progression to a Stage 2 Drought. ➢ Request that customers voluntarily reduce their water use by 10 percent. ➢ Enact the Stage 1 Drought restriction clause in contracts. ➢ Activate the water budget program for large-volume customers. ➢ Warn of and prepare for a Stage 2 Drought. ➢ Implement a public awareness campaign. **Recommended Responses to Stage 2 Drought** A Stage 2 Drought is triggered by actual or predicted July 1 reservoir storage of 65 percent or lower. The goal in a Stage 2 Drought is to reduce water use by 30 percent. (When July 1 storage levels are forecast at or below 70 percent, Denver Water's staff will begin planning for a potential Stage 2 Drought and may recommend that a Stage 2 Drought be declared before reservoir storage reaches 65 percent.) A Stage 2 Drought activates mandatory water use restrictions and requires a significant effort on the part of customers. Recommended responses to a Stage 2 Drought include: ➢ Allow watering only two days per week. ➢ Set a limit on the watering time allowed per watering day. ➢ Restrict or eliminate nonessential water uses. ➢ Implement a water use reduction goal of 30 percent for large-volume customers. ➢ Consider giving high-public-use customers special consideration. ➢ Implement industry-specific water restriction programs. ➢ Activate the enforcement program. ➢ Enact the Stage 2 Drought restriction clause in contracts. ➢ Design a surcharge program to support the mandatory drought restrictions. ➢ Implement a public awareness campaign. 8	*not possible to estimate the timing of the peaks directly because only monthly averages are provided. • We attempted to use the average daily hydrographs in Appendix H-4 to understand changes in timing. However, the hydrographs are difficult to read and do not show sufficient detail to evaluate the changes in peak flows. • Hydrographs that appear to show delayed peaks (based upon visual inspection): o H-4.2 Moffat Tunnel- Wet Year. Peak diversions under Alternative 1a occur later in the year than in the current scenario o H-4.5 Below DW Diversion from Jim Creek- Average Year o H-4.6 Below DW Diversion from Jim Creek- Wet Year o H-4.12 Fraser River near WP- Wet Year o H-4.16 Below DW Diversion from Little Vasquez Creek- Wet Year o H-4.28 St. Louis Creek near Fraser Gage- Wet Year o H-4.32 Fraser River below St. Louis Creek- Wet Year o H-4.44 Fraser River at Granby Gage- Wet Year.* **Response #767-23:** High spring flows would still occur with Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at

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	Recommended Responses to Stage 3 Drought A Stage 3 Drought is triggered by actual or predicted July 1 reservoir storage of 40 percent or lower. The goal in a Stage 3 Drought is to reduce water use by 50 percent. A Stage 3 Drought activates prohibitions on most lawn watering and other mandatory water restrictions. Stage 3 Drought restrictions are severe and may result in significant damage to landscapes. Recommended responses to a Stage 3 Drought include: ➢ Allow one day of watering per week for trees and shrubs (no turf watering except on high-public-use areas). ➢ Set a limit on the watering time allowed per watering day. ➢ Eliminate all nonessential water uses. ➢ Implement a water use reduction goal of 50 percent for large-volume customers. ➢ Implement industry-specific water restriction programs. ➢ Enact the Stage 3 Drought restriction clause in contracts. **Recommended Responses to Stage 4 Drought** A Stage 4 Drought is triggered by actual or predicted July 1 reservoir storage of 25 percent. The goal in a Stage 4 Drought is to reduce water use by 66 percent. A Stage 4 Drought activates a rationing program for Denver Water's customers. Restrictions under a Stage 4 Drought are severe and will probably result in long-term damage to landscapes. Though it is highly unlikely that conditions would ever warrant declaration of a Stage 4 Drought, recommended responses include: ➢ Limit outdoor watering to monthly tree watering. ➢ Eliminate nonessential water uses. ➢ Design a water-rationing program to provide customers water for essential uses for an indefinite period of extreme drought. **Public Outreach** In order for the Drought Response Plan to be effective, Denver Water must communicate effectively with all its customers. The three major components of Denver Water's Drought Communication Program are public involvement, customer information, and media relations. **Internal Communication** Communication among Denver Water's divisions is crucial to ensure that all activities at Denver Water support the drought response efforts. Three committees will oversee implementation of the Drought Response Plan: the Drought Response Committee, the Executive Drought Committee, and the Drought Compliance Committee. The Drought Ambassadors Program will disseminate timely, accurate drought information to all employees. 9	those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with a Moffat Project on-line. Information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. Information was added to FEIS Appendix H-6 regarding maximum flow reductions including the timing of maximum flow reduction, the streamflow change at the time of the reduction, and the percent flow reduction.

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	INTRODUCTION 10	Where appropriate the hydrographs in H-4 have been modified so that the months displayed extend from March through September as opposed to the entire year to make the graphs easier to interpret and evaluate changes in peak flows. Table 8 is inaccurate because it compares modeled data with historical data. Please see the response to Comment ID 5217 regarding the validity of comparing modeled data with historical data. The analysis of stream morphology was expanded to include a Phase 2 sediment transport evaluation. As part of this assessment, flows required to mobilize different particle sizes were quantified and the flow at which stream bed mobilization occurs was estimated. Results of this analysis were incorporated into an evaluation to quantify the duration, frequency and magnitude of flows exceeding the Phase 2 sediment transport threshold as well as changes to other high magnitude flood events. Changes resulting from the proposed Project were quantified. Results are provided in FEIS Sections 4.6.3 and 5.3. A discussion of the effects of flushing flows on aquatic resources was included in the DEIS and an expanded discussion is included in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #767-19*** *(ID 5208)**:*** *USFS Bypass Flows Bypass Flow Reductions The DEIS indicates that DW anticipates reducing the USFS Bypasses Flows in the Fraser basin much more in the future than has historically occurred. DW has reportedly only reduced the bypass flows once since they were established in 1970; in the winter of 2002/2003. The DEIS indicates that under the Full Use Existing System (by 2016), the bypass flows would be reduce 8 years out of the 45-year study period; or approximately one out of every six years (Table H-*

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	INTRODUCTION ***The DRP outlines a plan for drought response that maximizes available water supplies and minimizes water usage.*** This Drought Response Plan outlines procedures by which Denver Water could manage water supply and water use during drought. The procedures are designed to protect the community as a whole while considering individual customer priorities as much as possible. Because each drought is different, it is not practical to develop a set of hard and fast rules to apply to all droughts. These guidelines are intended to assist the five-member Denver Water Board in making decisions throughout the course of a particular drought. **The Board may adjust or refine these procedures in response to actual drought conditions.** **Drought Response Plan History** Recognizing the need for a plan to deal with short-term water shortages caused by drought, Denver Water created its first Drought Response Plan in 1991 with the help of a Citizen's Advisory Committee task force. The staff revised that plan several times, most recently as part of updating its Integrated Resources Plan, which was completed in February 2002, just months before the current drought began. The Drought Response Plan described in this document follows two years of drought restrictions in Denver Water's service area during 2002–2003 and incorporates lessons learned. As the population in Denver Water's service area continues to grow, the buffer in the reservoirs will diminish and droughts will have to be dealt with more quickly and more intensely. Accordingly, the Drought Response Plan must be updated regularly so that it is relevant to current conditions. Before drafting the current Drought Response Plan, Denver Water's Planning Division thoroughly examined a range of drought scenarios, quantified the severity of Colorado's past droughts, revisited the history of water use restrictions in Denver, reviewed the lessons of past droughts, and projected options for obtaining additional water supplies in times of drought. These reports and analyses are published in a separate volume of technical appendices for interested readers. **Drought Response Plan Components** The Drought Response Plan consists of four interrelated sections: ➢ **Triggers**—This section specifies the reservoir levels that activate four distinct stages of drought. ➢ **Drought Response Program**—This section provides guidelines for augmenting water supplies and reducing water use during times of drought. ➢ **Public Outreach**—This section outlines options for seeking customer suggestions and involvement in decisions, as well as methods to keep customers informed before, during and after a drought. 11	*1.51). The total volume of reduced bypasses (increased Moffat Tunnel diversions) averages approximately 1,307 af/yr and ranges from 440 af/yr to 1,910 af/yr in those years of reduced bypasses. The water supply needs in the Fraser River basin are critically dependent upon the streamflow from many of the same tributaries as the MCSP. Especially during dry months and dry years, minor changes in streamflow in these areas have critical significance to the aquatic habitat and to the local basin water supply needs. The DEIS does not provide any detail about the time of year or at which of the four bypass locations that these bypasses would be reduced. Therefore it is impossible to understand the impacts to the water providers in this area from any future bypass reductions. The DEIS does not describe the extent to which the proposed project will increase the duration that the source area streamflow will be limited to only the minimum USFS bypass flows. For example, Table 9 presents a comparison of the number of months during the PACSM hydrology period that the streamflow was at or below the USFS minimum bypass flows using actual historic gage data and the UPCO PACSM output for Scenario 3 (Alternative 1a) for the Fraser River near Winter Park. [SEE SOURCE FILE FOR TABLE 9, FRASER RIVER AT WINTER PARK AVERAGE MONTHLY STREAMFLOW NUMBER OF MONTHS AT OR BELOW THE USFS BYPASS FLOW (45 YEAR STUDY PERIOD, 1947-1991).] This table shows that, over the 45-year study period, the total number of months of minimum flow will increase from 21% of the time to 49% of the time annually. It also shows that this increase in minimum flow frequency will be more extreme in certain months such as August and September.* **Response #767-19:** The comment mentions UPCO output for Scenario 3. Use of UPCO output is ineffective for comparison purposes in the Moffat EIS. The UPCO simulations

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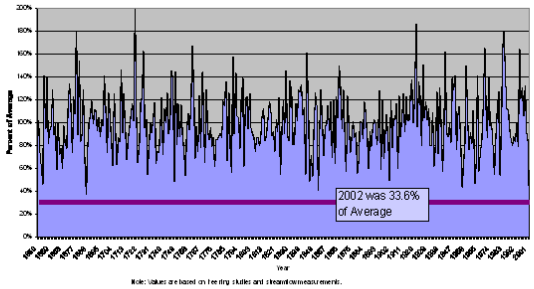
	➢ **Internal Communication**—This section presents a process for keeping all Denver Water employees up-to-date on drought conditions and on the drought response measures adopted by the Board. **Defining Drought** Drought is a normal, recurrent aspect of climate. Droughts occur in virtually all climatic zones, though their characteristics vary significantly from one region to another. When the amount of water flowing into streams and then into reservoirs is less than average, Denver Water will more closely monitor its water supply outlook. If continued low stream flows stress water supplies, Denver Water will work with customers to implement this Drought Response Plan. Figure 1 depicts the variability of natural stream flows in Denver Water's raw water collection system. Troughs in the plot indicate that droughts are a recurring natural phenomenon.  *Figure 1. Natural stream flow in Denver Water's collection system* Denver Water's collection system is designed to dependably meet the needs of customers through hydrologic conditions similar to those of the past 50 years without supply shortages. Unfortunately, no one can predict how long drought conditions will continue once they begin. Timely response—neither too early nor too late—is Denver Water's goal. **Firm Yield** Denver Water defines the term "firm yield" as the estimated amount of water available to meet annual average demand without the need to restrict water use (Figure 2). A key word in this definition is "average" because, in practice, customers use more water in warm, dry weather than in cool, wet conditions (Figure 3). Furthermore, shifts in weather patterns can be substantial from year to year and decade to decade, affecting both water supply and water use. 12	were developed nearly 10 years ago and contained a different basis for the existing system, a different proposed project, different demands, and many other dissimilar conditions. Subsequent to the UPCO modeling effort, the Corps and its consultants conducted a thorough review of PACSM for use in the Moffat EIS. As a result of that review, Denver Water made numerous improvements to the model. These include changes to estimates of natural streamflow, water rights and agreements, system operations, physical system capacity, return flow timing and rates, and demands. Given these changes and improvements it would be nearly impossible to quantify the specific causes for any given difference in results between UPCO and the Moffat EIS simulations. This type of comparison is unnecessary since the review of Moffat System hydrology should rely on Moffat EIS simulations, and not outdated UPCO output. The comment incorrectly states that Denver Water has only reduced bypass flows once in the winter of 2002/2003. Bypass flow reductions have occurred several times in 1975, 1977, 1980, 2002, 2003, and 2004. FEIS Chapter 4 was revised to provide additional information on bypass flow reductions including the time of year and at which location bypasses would be reduced and potential impacts on water providers attributable to future bypass reductions. In addition, FEIS Chapter 4 was revised to include information on the increased frequency, duration and time of year that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up. ***Comment #767-8*** *(ID 5207)**:*** *Elimination of Bypass Flow Reductions Due to the significant level of existing and proposed depletions from the Fraser River basin, the existing bypass flows are critical to the aquatic habitat and to protect critical*

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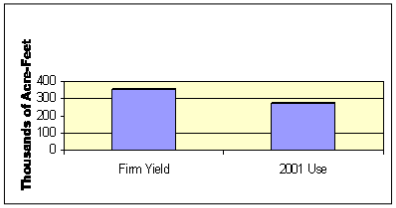
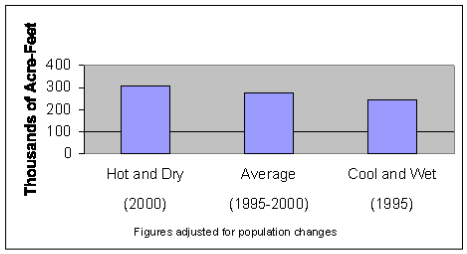
	 ***Figure 2.*** *The firm yield of Denver's water system—estimated at 375,000 acre-feet per year—compared with 2001 use* **Firm yield is an estimate rather than an exact calculation.** Of the many factors that affect firm yield estimates, weather is perhaps the most inexact. If the Denver area experienced a drought more severe than any ever recorded, this could stress the water supply system even more than is accounted for in the estimated firm yield. Still, in relation to reasonable predictions based on a century of measured stream flows, the firm yield estimate appears to be a relatively safe, prudent way to view the water supply for drought planning purposes. **Although 2002 was the driest year on record for Denver Water's system, a recurrence of the multiyear drought that occurred in the 1950s would be worse than a recurrence of a single dry year such as 2002.**  ***Figure 3.*** *Effect of weather on water use* **Long-term Conservation Efforts** On the whole, Denver Water's customers are conserving water. Denver Water first launched an aggressive program to promote water conservation in the mid-1970s. By 1979, the Denver Water Board had adopted a formal Water Conservation Plan and set goals for reducing water use. 13	*water supplies. The COE should require as a condition of the permits that the first benefit of the MCSP is to provide sufficient storage to eliminate the need for any future bypass reductions. The total volume of bypasses shown on DEIS Table H-1.51 averages approximately 1,307 af/yr. This volume is approximately 2% of projected Moffat diversions and only 0.4% of DW's total system demands at Full Use condition, yet is critical to local water resource needs.* **Response #767-8:** The Moffat Project would not increase the frequency, duration or magnitude of bypass flow reductions. Bypass reductions are a function of Denver Water's existing operations, therefore, the hydrologic effects associated with bypass reductions that would occur as Denver Water's demand grows to Full Use of the Existing System are not an impact of the proposed Moffat Project. The Moffat Project could potentially reduce Denver Water's need to reduce bypass flows if restrictions are imposed less frequently during droughts since the Moffat Project would increase Denver Water's water supply and the reliability of their system. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. ***Comment #767-17*** *(ID 5206)**:*** *Other Bypass Flow Reductions DW has similar minimum bypass flows from Dillon Reservoir and other locations that can be reduced during certain conditions. However, the DEIS does not provide any information regarding future projected bypass reductions at the other locations. The DEIS does indicate that the bypasses from Dillon Reservoir have*

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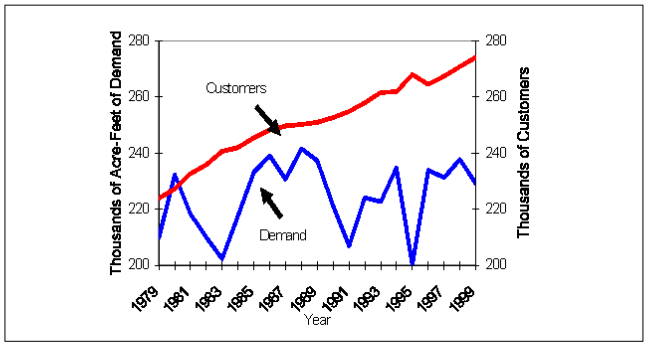
	To track water use and water savings, Denver Water looks at customer water demand over the years and compares these numbers with population growth in its service area. Figure 4 shows 20 years of comparisons. The two biggest dips, in 1983 and 1995, occurred in very wet years. The good news is that, on average, customers appear to be reducing water waste. The bad news is that much more effort—by customers and water providers—may be required to achieve additional reductions during a severe drought.  ***Figure 4.*** *Customer water demand and population growth in Denver Water's service area (1979–1999)* 14	*not been reduced historically, and are not modeled to be reduced out of Dillon Reservoir under any of the project alternatives [DEIS 4-81]. However, the DEIS does not provide any information regarding future projected bypass reductions at the other locations. The DEIS should provide an analysis of the increased yield and the environmental consequences of various combinations of bypass reductions to minimize the impacts to the source areas.* **Response #767-17:** Denver Water's ability to reduce bypass flows below Dillon Reservoir is pursuant to their ROW agreement with the USFS (see DEIS Section 3.1.5.4) and is part of their current system and operations. Denver Water may reduce bypass flows whenever mandatory restrictions are imposed on the use of water in the area served by Denver Water due to insufficient water supply. Although Denver Water has the ability to reduce bypass flows below Dillon Reservoir, they have not exercised that right to date in response to water use restrictions imposed on their customers. However, Denver Water has reduced the outflow from Dillon Reservoir below 50 cfs for temporary periods of time in the past for maintenance, repairs or construction on associated water facilities. The Moffat Project could potentially reduce Denver Water's need to reduce bypass flows below Dillon Reservoir if restrictions are imposed less frequently during droughts since the Moffat Project would increase Denver Water's water supply and the reliability of their system. Denver Water has the ability to reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs per the South Platte Protection Program (SPPP) agreement. Bypasses below these reservoirs have not been reduced historically. The Proposed Action would not change the likelihood of conditions under which Denver Water may reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs to insure no

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	TRIGGERS 15	loss of yield. The Proposed Action would not affect the SPPP agreement or Denver Water's ability to meet minimum outflows from Eleven Mile Canyon and Cheesman reservoirs. Any reduction in bypass flows or other proposed flow regimes would be a function of Denver Water's existing operations, not the proposed Moffat Project. If it is determined that operations under the SPPP would result in a loss of existing or future water supplies, Denver Water could reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs, however, that would be a function of Denver Water's existing operations and not an impact of the proposed Moffat Project. Operations under the SPPP are reasonably independent of impacts from the proposed Moffat Project. Since the Proposed Action increases Denver Water's firm yield, system reliability and flexibility, the frequency and magnitude of bypass flow reductions below Eleven Mile Canyon and Cheesman reservoirs, if needed, could potentially decrease. The portion of Section 3.1.5.7, which discusses minimum bypasses below Eleven Mile Canyon and Cheesman reservoirs was revised. The Strontia Fish Flow Recovery project provides approximately 3,000 AF of yield to Denver Water by recovering water that is released from Strontia Springs Reservoir to maintain fish flows in Waterton Canyon. In 2006, Denver Water completed a permanent pump facility above Chatfield Reservoir at the diversion site of the Old Last Chance Ditch to recover fish flow releases from Strontia Springs Reservoir. The new diversion facility is sometimes referred to as the Kassler Pump Station Diversion. Water released at Strontia Springs Reservoir can be diverted at the Kassler Pump Station Diversion and then pumped to Conduit 20 for delivery to Marston Reservoir and the Marston WTP. This facility could potentially provide most of the 3,000 AF of yield. Denver Water plans on building an additional pump station at the outlet works of Chatfield Reservoir, which would enable Denver

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	TRIGGERS ***The impact of drought can generally be divided into two categories: effects on water supplies and effects on society.*** Drought affects our water supply, our customers, and many other aspects of our communities and environment. Monitoring these effects and deciding how to respond are critical activities under drought conditions. The impact of drought can generally be divided into two categories: effects on water supplies and effects on society. Water supply effects can be measured or estimated by scientific means, but societal effects are less tangible. Individual water customers are impacted by these intangible societal effects. Societal effects also have ramifications in the broader context of economics, politics, relations with surrounding communities, and the environment. **Societal Effects** How a drought affects individuals—plus public perceptions about how the drought should be addressed—will influence how customers respond to Denver Water's calls to save water. The drought response activities of other water suppliers in the metro area, as well as news media and political responses, will also affect customer reaction. Although societal effects cannot be viewed in terms of simple formulas, they can be monitored and described for consideration in the Board's decisions about drought response. ***Response of Other Water Suppliers*** Droughts affect the supplies of each metro area water providers in different ways. The northern suburbs with single watersheds may be better or worse off, depending on the localized effects of a drought. Other systems such as Aurora's have less senior water rights and could be affected much sooner or more severely than Denver's system. The Denver Water Board will weigh the importance of developing a unified metro-area response against the potential of restricting our customers' water use either sooner or later than warranted by water supply conditions. As in 2002–2003, Denver Water will monitor the drought response decisions of other local water suppliers. ***News Media Response*** Much of the information customers receive about drought comes from the media. Members of the media can be very helpful in conveying factual information to customers, and they also play a key role in shaping public perception of drought. In 2002, for example, the media sometimes ignored or discounted the fact that the drought did not affect all metro-area water suppliers in the same way or to the same degree. ***Political Response*** Political response to the drought can take many forms and depends on the constituents affected. For example, the Board might be asked to save some of its water supply for use by providers with less reliable systems. Another example of a political response would be the reaction of other communities in Denver Water's watershed to lowered water levels in nearby reservoirs. 16	Water to recover fish flow releases that are not diverted at the Kassler Pump Station. Denver Water has the ability to reduce bypasses below Strontia Springs, however, since water released for fish flow purposes is recovered at the Kassler Pump Station there would be no increase in yield associated with reducing this bypass. Furthermore, bypasses below Strontia Springs Reservoirs have not been reduced historically. Reductions in bypasses below Dillon, Eleven Mile Canyon, Cheesman, and Strontia Springs reservoirs have not occurred historically and there is no indication that bypass reductions at these locations would increase under the Proposed Action. There is no need to evaluate combinations of bypass reductions since bypass reductions are not an impact of the proposed Moffat Project. ***Comment #767-16*** *(ID 5205)**:*** *Changes in Flushing Flows As described above, peak flows during the runoff season are crucial for providing flushing flows to maintain aquatic habitat and channel maintenance flows that help to maintain the connection between the channel and the floodplain and transport sediment. The DEIS does not provide any analysis of the historic, current or projected occurrence of flushing flows for any purpose. An analysis conducted under Phase 3B of the Grand County Stream Management Plan provides the following recommendations for flushing flows in the Fraser River basin to maintain a healthy fish habitat: [SEE SOURCE FILE FOR TABLE, GRAND COUNTY STREAM MANAGEMENT PLAN FLUSHING FLOW ESTIMATES (2008).] In order to estimate the potential changes in the frequency of flushing flows under the Moffat Project, the UPCO Tool was used to calculate the number of years that the upper value of the recommended flushing flow range at the Fraser River at Winter Park location (F3 = 175 cfs) will be satisfied under the DEIS preferred*

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	Economic Impacts Water restrictions imposed in response to drought affect businesses in different ways. In 2002–2003, some water-dependent industries, including landscape-related businesses and water bottling companies, felt that restriction programs unfairly affected them economically. As part of its public outreach efforts, Denver Water will continue to carefully coordinate restriction programs with these industries. **Denver Water also encourages water-dependent businesses to develop their own Drought Response Plans to guide them through periods of drought and restrictions.** ***Environmental Effects*** Reduced stream flows and lower reservoir levels caused by drought can affect the environment, recreation, fisheries, economic activity, and surrounding communities. As in 2002–2003, Denver Water will monitor stream and reservoir levels so that environmental effects are taken into account in drought response decisions. ***Differences in Mountain and City Weather*** City weather is considered in water supply forecasts, but weather in Denver Water's mountain watersheds, which can differ considerably from that in the city, is the biggest single factor affecting our water supply. If conditions are dry in the city but wetter in the mountains, customer and media perception might be that drought is having a greater impact on supply than it actually is. The reverse could also occur, making it more difficult for customers to understand the severity of the drought. As during the 2002–2003 drought, Denver Water will monitor the difference between city weather and mountain watershed weather. ***Long-Range Weather Forecasts*** Denver Water's drought response may differ depending on whether long-range weather forecasts indicate a prolonged drought or a short-term dry period. **Water Supply Triggers** Because most of the water supply during drought comes from storage reservoirs, reservoir levels are the best indicator of a drought's impact on supplies. **Reservoir levels are the "bottom line" result of most of the factors affecting supply—including weather, snowpack, soil moisture, runoff, water rights, bypass requirements (minimum stream flows required after diversion points are passed), collection system limitations, and water use.** In the overall water storage picture, normal or generous stream flows (and thus higher reservoir levels) in one area of the water system can compensate for poor stream flows (and lower reservoir levels) in another. Customers benefit from a water system that is flexible enough to take advantage of circumstances such as these. The water supply triggers that most heavily influence drought response are the storage levels forecast for July 1. Forecasts for July 1 are used because water storage in the Denver Water system usually reaches its maximum by this date each year; most of the snowpack has melted, and the high-water-use days of summer are ahead. Denver Water will make its first official assessment of whether to declare a drought as soon as staff members can predict with reasonable certainty the total amount of water that will be stored in Denver's reservoirs on July 1. 17	*alternative. Table 10 compares the frequency of future flushing flows to the actual number of years that the same flow has been met historically. As shown in Table 10, the recommended flushing flow has historically been met in 44% of the years (20 out of 45 years). [SEE SOURCE FILE FOR TABLE 10, FRASER RIVER AT WINTER PARK COMPARISON OF YEARS THAT SATISFY THE GRAND COUNTY STREAM MANAGEMENT PLAN ENVIRONMENTAL FLUSHING FLOWS.] Based on the UPCO output, the frequency of flushing flows will decrease to 36% of years (16 out of 45 years) under the DEIS preferred alternative. Not only does the number of years that satisfy the flushing flow recommendation decrease under the preferred alternative, but the longest duration between the recommended flushing flows increases from 5 years to 9 years. Increases in duration between flushing flows has the potential to negatively affect aquatic communities.* **Response #767-16:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little

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	July 1 storage levels are forecast during the first weeks of February, March, April, May and June. Predictions are based on measurements of snowpack, stream flows, and the amount of water already in storage on the forecast date. Obviously, the ability to predict July 1 storage improves as that date approaches. Typically, forecasts of July 1 reservoir storage do not begin to be reliable until the April forecast. Thus, Denver Water would not declare a drought before April except under unusual circumstances. Once a drought is declared, Denver Water will carefully watch day-to-day changes in stream flow, snowpack, precipitation, temperature, and water use until the drought is over. **If conditions change after a drought has been declared, the declaration can be lifted or the level of drought response can be adjusted.** Denver Water's drought response decisions must be adequate to deal with the lack of water without causing unnecessary hardships for its customers. The downside of starting restrictions in the spring is that wet spring weather can quickly extinguish the need for restrictions. The following triggers are recommended as signals to declare a drought: If predicted or actual July 1 storage is less than . . . — the declaration would be . . . 80 percent full >>>>> — Stage 1 Drought 65 percent full >>>>> — Stage 2 Drought 40 percent full >>>>> — Stage 3 Drought 25 percent full >>>>> — Stage 4 Drought **The threshold for declaring a drought—reservoir storage at 80 percent—was chosen for two reasons.** The first reason: 80 percent is the amount of water that, with increasingly cautious use over time, is projected to see Denver Water's existing customers through a drought more severe than they experienced in the 1950s. The second reason is to avoid inconveniencing customers more often than necessary. **As growth occurs or firm yield estimates change, this threshold may need to be changed.** Here is an example of how the process of drought assessment works. If in April of a given year, Denver Water predicts its reservoirs will be 90 percent full on July 1, declaring a drought would not be recommended. ***April prediction of July 1 storage: 90% full*** ***No drought declaration*** ***Continue monitoring conditions*** But suppose that May is unusually dry and the June prediction of July 1 storage drops to 78 percent full. In this case, Denver Water would likely recommend declaring a Stage 1 Drought. 18	change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way (ROW) agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in

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	June 1 prediction of July 1 storage: 78% full *Declare Stage 1 Drought* *Take appropriate actions (see Stage 1 Drought Response)* *Continue monitoring conditions: revise response level if conditions warrant* If the supply situation becomes significantly worse, the drought declaration would likely be changed to Stage 2. Generous rain, on the other hand, would likely cause the drought declaration to be lifted. **Triggering Action: To Wait or Not To Wait?** Denver Water staff spent a great deal of time analyzing and debating the advantages and disadvantages of taking early action in response to a possible drought versus delaying action until drought conditions are more clear. Tradeoffs are shown in Table 1. ***Table 1.*** *Tradeoffs of early versus delayed action in case of possible drought* Early Action: Customers are frequently asked or required to reduce water use. / Delayed Action: Customers are infrequently asked or required to reduce water use. Early Action: Reservoirs stay relatively full. / Delayed Action: Reservoirs are less full. Early Action: A severe drought can be withstood before storage water runs out. / Delayed Action: A less severe drought can be withstood before storage water runs out. A primary focus in the debate over early action versus delayed action was the potential hardships caused by reducing water use and drawing reservoir storage to lower levels. Reducing water use could affect metro-area businesses and damage water-intensive landscapes. Low reservoirs reduce or prevent recreation, affect the environment and create aesthetic problems. In the final analysis, Denver Water staff judged proposed storage levels and drought responses on the basis of three questions: ➢ **How severe a drought could Denver Water withstand with a range of potential storage levels?** ➢ **With these storage levels, how often and to what degree would customers be asked to reduce water use?** ➢ **How low would storage levels get?** To answer these questions, the staff used the following assumptions: ➢ Current average annual demand is 285,000 acre-feet. ➢ Current annual firm yield is 375,000 acre-feet. ➢ Through close cooperation, Denver Water and its customers would cut annual water use by 10 percent during a Stage 1 Drought, 30 percent during a Stage 2 Drought, 50 percent during a Stage 3 Drought, and 66 percent during a Stage 4 Drought (Table 2). Water use reductions were estimated on the basis of how customers use water during normal periods and how they have used it during past dry periods. 19	the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. The comment mentions UPCO output for Scenario 3. Use of UPCO output is ineffective for comparison purposes in the Moffat EIS. The UPCO simulations were developed nearly 10 years ago and contained a different basis for the existing system, a different proposed project, different demands, and many other dissimilar conditions. Subsequent to the UPCO modeling effort, the Corps and its consultants conducted a thorough review of PACSM for use in the Moffat EIS. As a result of that review, Denver Water made numerous improvements to the model. These include changes to estimates of natural streamflow, water rights and agreements, system operations, physical system capacity, return flow timing and rates, and demands. Given these changes and improvements it would be nearly impossible to quantify the specific causes for any given difference in results between UPCO and the Moffat EIS simulations. This type of comparison is unnecessary since the review of Moffat System hydrology should rely on Moffat EIS

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	Table 2. *Triggers and water use reduction goals for four stages of drought* Reservoir Storage / Drought Stage Declared / Water Use Reduction Goal 80% / Stage 1 / 10% 65% / Stage 2 / 30% 40% / Stage 3 / 50% 25% / Stage 4 / 66% *How severe a drought can the Denver system withstand?* The proposed trigger levels would enable Denver Water and its customers to endure a drought more severe than the 1950s drought. So far, the current drought has not stressed Denver Water's supplies as much as a recurrence of the 1950s drought would. At the current level of water use, adopting the trigger levels proposed in Table 2 would enable Denver Water to withstand approximately four consecutive 2002-type drought years before depleting storage. If the Board chooses to maintain this level of system reliability as the population in Denver Water's service area grows, the recommended water-savings goals will need to be increased. *How often and to what degree would customers be asked to cut water use?* At current water supply and water use levels, the triggers delineated in this plan would result in Denver Water's customers having no water use restrictions about 90 percent of the time. During the other 10 percent of the time, Stage 1 or Stage 2 restrictions would be in effect. As water demand increases with population growth, Denver Water expects drought declarations to occur more frequently. System maintenance or repair activities that temporarily take a storage or conveyance system out of service could prevent Denver Water from storing all available water and thus make drought declarations more likely. **Risk Associated with Forecasts** Sometimes a drought appears to be at hand, but Mother Nature has other ideas. Figure 5, for example, shows what happened in the South Platte River Basin in 1995. The South Platte basin is a major source of Denver Water's supply. From February through mid-April of that year, water supplies from this source were below normal and drought conditions looked probable. The situation changed, however, as a result of higher-than-average precipitation during late April and most of May. 20	simulations, and not outdated UPCO output. The comment incorrectly states that Denver Water has only reduced bypass flows once in the winter of 2002/2003. Bypass flow reductions have occurred several times in 1975, 1977, 1980, 2002, 2003, and 2004. FEIS Chapter 4 was revised to provide additional information on bypass flow reductions including the time of year and at which location bypasses would be reduced and potential impacts on water providers attributable to future bypass reductions. In addition, FEIS Chapter 4 was revised to include information on the increased frequency, duration and time of year that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up. A discussion of the effects of flushing flows on aquatic resources was included in the DEIS and an expanded discussion is included in the FEIS in Sections 3.11, 4.6.11, and 5.11. The analysis of stream morphology was expanded to include a Phase 2 sediment transport evaluation. As part of this assessment, flows required to mobilize different particle sizes were quantified and the flow at which stream bed mobilization occurs was estimated. Results of this analysis were incorporated into an evaluation to quantify the duration, frequency and magnitude of flows exceeding the Phase 2 sediment transport threshold as well as changes to other high magnitude flood events. Changes resulting from the proposed Project were quantified. Results are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #767-15*** *(ID 5204)**:*** *Significance of Small Flow Reductions Small changes in streamflow in the Fraser and tributaries are significant to the aquatic environment. DEIS at p. 4-39.*

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	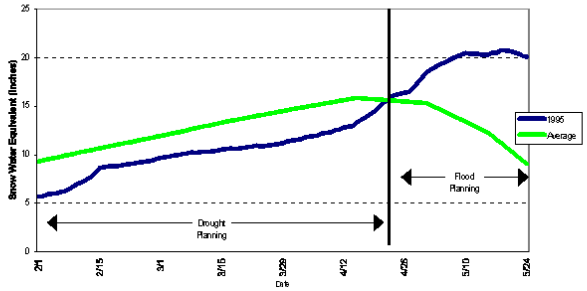 ***Figure 5.*** *Snowpack in the South Platte River Basin—1995* Unfortunately, Denver Water is no better at predicting weather than anyone else. Forecasting a drought—and even knowing with certainty if one exists—can be difficult. When a dry year occurs, for example, we don't know whether we are in the first year of a three-, five- or ten-year drought or merely in a dry year somewhere in a series of average-to-wet years. Even though droughts cannot always be predicted, customers will be kept advised of the latest information on Denver Water water supplies so they may take this into account in their own planning. 21	*The statement that flows will change by less than "1cfs more than 80% of the time" is misleading since it does not reveal the potentially dramatic changes in flow that occur the other 20% of the time [DEIS at p. 4-39]. Flow reductions would occur at higher flow rates in wet years and there would be flow changes of less than 1 cfs more than 80% of the time in basin upstream of the St. Louis Creek confluence [DEIS 4-39]. In DEIS Appendix H-7.1, the DEIS says diversion increases under Full Use (2016) and under the Preferred Alternative (2030) are significant and reduce stream flows in some Fraser River and Williams Fork River tributaries by 60%. DEIS at p. 4-37 through 4-39, and Appendix H-7.1. The DEIS projects a decrease in average monthly flow for June in the Fraser River below Winter Park of 23 cfs and concludes that these impacts are insignificant. DEIS at p. 4-37 through 4-39, and Appendix H-7.1. Yet, a decrease of 23 cfs on the Fraser River represents a reduction in flow of 43% for June from the Full Use (2016) baseline (Appendix H-3.6). A decrease of 29 cfs is predicted from Current Conditions (2006) which represents a flow reduction of 49%. (Appendix H-1.10). The modeled 2 cfs decrease on McQueary Creek represents a reduction in flow of 24% from the Full Use (2016) baseline. A decrease of 3 cfs is predicted from Current Conditions (2006) which represents a flow reduction of 44%. (Appendix H-1.31). The projected flow reductions of this magnitude have the potential to negatively impact macroinvertebrate populations, fisheries, habitat connectivity and water quality, and need to be evaluated more thoroughly.* **Response #767-15:** DEIS Section 4.9 and FEIS Section 5.11 evaluated the Project impacts to these streams. In many of the tributary streams to the Fraser River and Williams Fork River, the reductions in peak flows would result in adverse impacts to aquatic resources as discussed in the EIS. In the Fraser River mainstem, the reductions in flow would generally increase habitat availability for

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	DROUGHT RESPONSE PROGRAM 22	fish and invertebrates while still maintaining sediment transport and channel maintenance functions. This would result in negligible to minor beneficial impacts. ***Comment #767-10*** *(ID 5203)**:*** *Alternatives Analysis* *Under the DEIS, ALL of the action alternative include some level of depletion from the Fraser and the Blue Rivers, with the majority derived from the Fraser River. The DEIS fails the requirements of 404b1A(a) guidelines regarding least environmentally damaging practicable alternatives. The DEIS should include detailed consideration of the following options that may reduce or eliminate the need for additional diversions from an already heavily depleted stream system (see Figures 1 through 3): [SEE SOURCE FILE FOR FIGURE 1, FRASER RIVER NEAR WINTER PARK AVERAGE DAILY STREAMFLOW.] [SEE SOURCE FILE FOR FIGURE 2, COLORADO RIVER AT HOT SULPHUR SPRINGS AVERAGE DAILY STREAMFLOW.] [SEE SOURCE FILE FOR FIGURE 3, BLUE RIVER BELOW DILLON AVERAGE DAILY STREAMFLOW.] • Options utilizing demand management during critical periods. DW would still have the 30,000 af Safety Factor to rely on. • The use of unused reusable effluent in a manner similar to the WISE project currently being considered by DW. Table 2-9 indicates that DW would have nearly 20,000 af/yr of unused reusable effluent during its critical period (1954- 1957). Given that this volume matches perfectly with DW's stated Need for additional yield, it seems highly illogical that the use of this unused asset wasn't included as one of the 'less environmentally damaging practicable alternatives.' • The temporary use of various potential supplies such as temporary fallowing of agricultural supplies, temporary use of CBT units, access to 'dead pools' at Gross, Chatfield and other reservoirs, interconnection with other providers, etc. • Another logical solution that should be included in any final alternative are North-South interconnect options.*

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	DROUGHT RESPONSE PROGRAM ***As reservoir storage declines, efforts to reduce water use or to add to water supplies increase.*** Denver Water's Drought Response Plan consists of two components—the **triggers** that signal which stage of drought should be declared and the corresponding **responses** recommended for each stage. The plan delineates four stages of drought severity; each stage is based on the percentage of storage expected in Denver Water's reservoirs at the end of the runoff season on July 1. For each stage, progressively more stringent responses are recommended. As reservoir storage declines, efforts to reduce water use or to add to water supplies increase. Some drought response measures, particularly those designated for mild episodes of drought, require minimal customer effort. Measures become mandatory, more costly, and sometimes intrusive as drought progresses. Basically, the recommended response to a Stage 1 drought is voluntary measures; to a Stage 2 drought, mandatory restrictions; to a Stage 3 drought, prohibitions on lawn watering; and to a Stage 4 drought, rationing of water supplies for essential uses. To activate a particular drought response, the Board of Water Commissioners declares a drought of specific severity and adopts an effective date for imposing applicable restrictions. Because Stage 2 and Stage 3 droughts involve mandatory restrictions, they are incorporated into Denver Water's Operating Rules and become enforceable pursuant to the Denver Charter, the Denver Revised Municipal Code and provisions in Denver Water's water service agreements and water leases. Chapter 19 of the Operating Rules contains the restrictions that apply during a Stage 2 or Stage 3 drought, as declared by the Board. In September 2003, Denver Water commissioned a survey to gauge customer attitudes toward the drought. This survey, conducted by a professional marketing company, is included in the technical appendix. Results of this survey were used to refine Denver Water's response to drought. The drought measures discussed in this section reflect the attitudes and current conditions of customers, as documented in the customer survey. ***Drought Response Within Master Meter Districts*** Water service provided by Denver Water within master meter districts is governed by the Operating Rules, including Chapter 19. Under master meter water service agreements, master meter districts retain the right to make and enforce their own rules that are not inconsistent with the Operating Rules; these districts also agree to exercise their powers to assist Denver Water in enforcing the Operating Rules. **Increasing Water Supply** In addition to managing water use during a drought, Denver Water will try to augment its supplies by gaining access to other sources. Each augmentation option presents unique intergovernmental and technical issues and must be considered individually. Some of the possible options are described here. 23	*While this may not add to DW's system-wide firm yield, it would eliminate the non-supply issues identified in the P&N section of the DEIS, and open up other options to increase yield (such as water from the WISE project).* **Response #767-10:** Demand Management Mandatory watering restrictions are implemented by Denver Water during critical drought periods. These restrictions, however, are designed for short-term reductions in water use and would not independently or reliably meet the required firm yield of 18,000 acre-feet (AF). Non-Fraser Basin Alternatives Alternatives 2a, 2a.1, 2b, 2c, 3a, 3a.1, and 3b involve an expansion of the Williams Fork System and storage in the Clear Creek Basin in lieu of diverting that water back into the Fraser River Basin for re-diversion into the Moffat Tunnel. These alternatives were eliminated in Screen No. 2, which focused on environmental consequences, due to high scores under aquatic habitat, threatened and endangered species, and other habitat values criteria. These high scores would occur even if storage and conveyance in the Clear Creek Basin were replaced entirely with a larger Gross Reservoir expansion, due to environmental consequences associated with the Williams Fork Extension (Alternative 2) and Williams Fork South Extension Project (Alternative 3). Reuse Alternatives that were formulated that include reuse to varying degrees are Alternatives 6, 7, 8, 10, 11, and 14; therefore, almost 50% of the alternatives formulated include some component of reuse. These alternatives were configured to meet a portion or all of the new firm yield requirement with reusable effluent. Alternatives 6a and 6b are specifically indirect potable reuse alternatives. Alternatives 7, 8, 10, 11, and 14 are

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	Call back water rights that we allow others to use. Under contract, Denver Water allows ranchers to divert its Williams Fork water rights into the Big Lake Ditch. Under certain contract conditions, Denver Water may prevent the ranchers from diverting this water, allowing more water to flow into Williams Fork Reservoir and increasing the yield from Dillon Reservoir. **Pay another water user downstream of a Denver Water diversion point to not place a river "call."** A river call is an administrative mechanism used by the owner of a senior downstream water right to prevent or reduce water use by the owner of a junior upstream water right. One example of this alternative is Denver Water's contractual option to pay Xcel Energy, the public service company, to not place its Shoshone Power Plant "call" on the Colorado River. Without the Shoshone call in effect, Denver Water might be able to divert more water during a prolonged drought. **Seek waivers of minimum bypass requirements.** Denver Water must allow minimum amounts of water to pass beyond some of the locations where it takes water out of a river or stream. By contract, some of these minimum amounts can be reduced during a drought. **Develop Groundwater.** Denver Water is in the process of obtaining the legal right to use the nontributary groundwater (groundwater not hydraulically connected to a stream) that is stored in aquifers deep beneath our city. Once this right is granted, Denver Water could drill wells to gain access to this water. This well water is not available for current supply needs. **Pump water not available through gravity flow.** Normally, water flows from reservoirs and other water storage facilities by means of gravity. Sometimes water in the lower portions of these facilities is at a level below the pipe that carries the water to a treatment plant. Pumps could be used to pull this water up and into the transmission pipe. **Implement legal clauses allowing reservoir storage to be drawn below minimum levels.** At Chatfield Reservoir, for example, Denver Water is legally permitted to draw the water level below its normal minimum during a drought that is considered severe. **Decreasing Water Demand** Denver Water's primary response to drought is to manage water use so that supplies will be available for the most essential uses during the drought's duration. During the 2002 and 2003 periods of water restrictions, we learned that no single approach was effective at encouraging all customers to reduce their water use. The concept of a "basket of programs" proved more effective at creating an overall atmosphere that promotes water savings. These five programs include restrictions, surcharges, enforcement, incentives, and monitoring and evaluation. ***Restrictions*** Once the Board has declared a drought, Denver Water will activate the corresponding set of recommended responses. Denver Water's goal for drought response is to preserve the quality of public life and economic activity to the extent possible in the face of water shortage. In 2002, the Board adopted policy guidelines for developing a drought restriction program. Denver Water will follow these principles in restricting water use during a drought. 24	variations of indirect potable reuse alternatives that involve treating reusable water, storing it, and delivering it back to the Moffat Collection System. The primary difference between these alternatives and 6a and 6b is that treated reusable water is not stored in Gross, Ralston or Leyden Gulch reservoirs and blended with other supplies prior to treatment at the Moffat WTP. Storage for reusable supplies in Alternatives 7, 8, 10, and 11 is provided at new gravel pits or deep aquifer storage. Alternatives 6, 7, and 14 were screened in the Cost Screen (Screen 1C) because they had high relative cost indices primarily due to the high cost of advanced water treatment and residual disposal. Alternative 11 was also screened because it was determined after further evaluation that sufficient unused reusable effluent supplies were not available to meet the entire firm yield requirement of 18,000 AF/yr. Therefore, even if Alternatives 6, 7, and 14 were not screened out for cost, they would be screened out because there are not sufficient unused reusable supplies available to meet the entire firm yield requirement of 18,000 AF/yr. Alternatives 8a and 10a, which include indirect potable reuse to meet 5,000 AF/yr of the firm yield requirement, were evaluated as EIS alternatives. The treatment costs were considerably lower for these alternatives because only a portion of the firm yield requirement would be met with indirect potable reuse, therefore, they passed the Cost Screen. The partnership between Denver Water, Aurora, and the South Metro Water Supply Authority would make use of excess reusable water as it becomes available from time to time. When available, and on a space available basis, the excess reusable water would be pumped from the lower South Platte River via Aurora's Prairie Water pipeline (north of Denver) to water users upstream (south of Denver). The WISE project makes use of the same reusable water considered for Alternatives 8a, 10a, and other alternatives considered

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	Avoid irretrievable loss of natural resources. ➢ Allow watering of irreplaceable trees. ➢ Avoid killing perennial landscaping if possible. ➢ Tailor water restrictions as much as possible to known landscape needs. Restrict less essential uses before essential uses. ➢ Restrict water use for misters, fountains and other aesthetic water features first. ➢ Avoid using water as a substitute for something else (for example, cleaning impervious surfaces or washing personal vehicles). ➢ Curtail outdoor water use (except for watering trees and shrubs), along with restrictions on commercial use, before restricting domestic indoor use. Affect individuals or small groups before affecting large groups or the public as a whole, allowing as much public activity as possible to be unaffected. ➢ Preserve community pools rather than residential pools. ➢ Restrict golf courses before public parks. ➢ Restrict water use on less heavily used areas of parks where grass can go dormant before restricting use on formal and informal playing fields, where recreational activity would either kill the grass or have to be prohibited. Minimize adverse financial effects. ➢ Try not to put people out of business, although businesses that depend on purely discretionary water use will be affected. ➢ Restrict seasonal commercial use, which is likely to be outdoors. ➢ Restrict nonessential uses of water in businesses before affecting fundamental business functions. ➢ Work with large-volume water users to reduce use in the least disruptive manner. ➢ Engage in ongoing dialogue with the green industry to obtain input and allow these businesses to plan for future months. Eliminate waste. ➢ Enforce restrictions and permit limitations in an effective manner. ➢ Adopt restrictive criteria for exemptions from restrictions. ➢ Discourage or prohibit irrigation of medians. ➢ Prohibit installation of new landscaping if its survival next season is in doubt. ➢ Develop incentive programs to promote savings. ➢ Perform audits to identify water waste and recommend solutions. Adopt extensive public information and media relations programs. ➢ Inform customers about the problems caused by drought and what they can do to help. ➢ Hold and attend public meetings as necessary to receive input. ***Surcharges*** During drought conditions, Denver Water will be forced to confront three potentially conflicting objectives: (1) to quickly reduce the volume of water used by its customers, (2) to maintain adequate revenues to meet its financial obligations, and (3) to address the opposing needs of existing demand and growth. Drought pricing can be an effective tool in managing these objectives, and drought surcharges must be considered as part of an overall demand 25	in the DEIS. While the WISE project could provide Denver Water some firm yield, it does not deliver water to where Denver Water needs the extra supply (north end). Alternatives 8a and 10a deliver this water to the north end and are considered practicable alternatives in this EIS. Temporary Supplies Regarding system integration, please see the response to Comment Identification (ID) 5233. Dead Pool The dead pool at Gross Reservoir cannot be used as a water source because it serves a distinct operational purpose. The bottom of Gross Reservoir has a narrow v-shaped canyon which would allow the sediment plume at the inlet to Gross Reservoir to move towards Gross Dam if mobilized. Past studies have shown that the top level of this sediment plume is at an elevation of 7,169 feet (12,000 AF of storage). If the reservoir is drawn down below this point, it is likely the sediment plume would become mobilized and move closer to the outlet works of Gross Dam. If the sediment plume reaches Gross Dam, the outlet works could become plugged. Additionally, the outlet works valves and hydro-power turbines are not designed to pass the material in the sediment plume and extreme damage to the components would likely occur if the sediment plume were to pass through the outlet works. From a dam safety perspective, the existing reservoir drawdown limitation of 7,169 feet (12,000 AF) should remain in effect to prevent the sediment plume from becoming mobilized. North-South Interconnect Linking the South System and North System would not address the reliability, vulnerability and flexibility components of the Purpose and Need Statement. If Gross Reservoir empties, an interconnect requires the unimpeded operation of Denver Water's South

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	reduction and financial stabilization program. Denver Water will consider several guiding principles in developing surcharges. **There is a relationship between price and demand.** In theory, customers respond to an increase in price by reducing demand. The question is at what price level will the customer respond? The answer varies based on a number of factors. **Surcharges will be incorporated into an overall program to increase customer awareness of the drought's severity and the importance of saving water.** Customers respond to the "basket of programs" concept, which includes surcharges. Drought pricing plays a role in creating an environment in which customers recognize the importance of reducing water use. **Surcharges may apply to current water demands, new taps, or other demands on the water supply.** There is concern about issuing new taps when existing customers are subject to surcharges. Applying various forms of surcharges to different types of demands on the water supply provides an equitable method allowing all customers to share the burden of the reduced supply. **Surcharges are less effective by themselves.** Industry studies and Denver Water's own customer surveys indicate that surcharges are more effective at reducing water use when combined with other restrictions to create an atmosphere that promotes water savings. Customer response to price signals varies depending on several factors such as affluence, billing frequency, and the normal cost of water. Empirical data show that customers respond to temporary water pricing strategies as part of a water savings environment. **Surcharges are separate from rates.** Rates are based on cost. They are established to recover particular kinds of costs specified by the Denver City Charter. The purpose of drought surcharges, on the other hand, is to raise awareness of the value of water, to reduce water use, and to penalize those who don't comply with drought restrictions. These goals are better accomplished when surcharges are implemented as a temporary measure outside the cost-of-service rate structure. **Surcharges should match the severity of the drought.** Because every drought is different, each one may require a different set of responses. Surcharges must be structured to help create an atmosphere of appropriate water savings. **Surcharges must be feasible for computer systems to handle.** Denver Water must be able to respond to drought conditions quickly and efficiently. Any change in water use charges must be manageable with only moderate modifications to existing computer systems. Substantial changes reduce response times and contribute to errors. Because internal coordination is critical, staff members from Customer Service, Information Technology, Accounting, and other relevant sections will be included in discussions of surcharge options. **Surcharges should be tailored for different customer groups and monitored for effect.** A one-size surcharge does not fit all. Commercial and industrial customers use water differently from residential customers. Large-volume public use customers may need some accommodation. The surcharge structure must be flexible enough to promote water savings while still addressing diverse customer needs. 26	System. Loss of operation of a portion of the South System could exacerbate the water supply reliability problem and possibly cause an interruption of service to customers if water cannot be delivered via the interconnect. Alternatives 4 and 5 evaluated during the screening process incorporated an interconnection between the South and North systems. In addition, portions of Conduit X were included in several alternatives (Alternatives 2, 3, 4, 5, 10c, 10d, 10e, and 11). However, Conduit X in its entirety was not considered in lieu of the South System interconnects included in Alternatives 4 and 5. South System interconnects high in the system from either the North Fork South Platte River at the Roberts Tunnel to the Bear Creek drainage (Alternative 4a) or from Dillon Reservoir to the Clear Creek drainage (Alternative 5) were included in lieu of Conduit X to address the location component of the Purpose and Need statement. New firm yield must be provided to the Moffat Treatment Plant to address reliability, vulnerability, and operational flexibility issues. The lower in the South Platte River system the interconnect is located, the more vulnerable and potentially less reliable Denver Water system is due to unplanned outages, including natural and manmade disasters. Denver Water's collection system is vulnerable to natural and manmade disasters and system failures because approximately 90% of available reservoir storage and 80% of available water supplies rely on the unimpeded operation of Denver's South System. Loss of operation of any portion of the South System could require more water from the Moffat Collection System to meet customer's water demands. If an interconnect was located downstream of several of Denver Water's critical South System facilities, including Roberts Tunnel, Dillon, Eleven Mile,

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	Surcharges should reflect overall drought response philosophies. Because all surcharge structures divide customers into groups, no surcharge structure is 100 percent "fair." Some customers may pay a surcharge even if they comply with the other restrictions. In addition to raising awareness of the value of water and encouraging temporary reductions in use, surcharges can supplement revenues if necessary. **Surcharges may need to be seasonally adjusted.** In Colorado's semi-arid climate, water use is greater in summer than in winter. Outdoor use is more discretionary than indoor use, and surcharges should be adjusted to assist in maintaining a water savings environment. Because restrictions to reduce indoor use are difficult to design, adjusting surcharge thresholds can be more effective at monitoring and reducing indoor water demand in winter. **Public input and information are key to customer understanding of surcharges.** When surcharges are designed and implemented, the public must have adequate opportunities for input, the surcharge must help create an atmosphere of water savings, and the public must receive adequate information to fully understand the surcharge program. **Surcharges are temporary measures.** The criteria that determine when surcharges will be lifted should be specified before the surcharges are imposed. This will reinforce the temporary nature of the surcharge in the minds of customers. **Equity issues related to removing the surcharge should be addressed in advance.** The specified conditions leading to termination of surcharges do not always occur at the end of a billing period. Criteria for lifting the surcharge once the specified conditions occur should be considered ahead of time. ***Enforcement*** The enforcement program is designed to support the water use and drought restriction rules, as described in Chapters 12 and 19 of the Operating Rules. Drought monitoring staff will patrol Denver Water's service area to identify customers who are not complying with the rules. The primary mission of the drought monitors is to help customers comply. Drought monitors will hand out educational materials, help customers operate their irrigation systems, and answer questions about the drought response measures. Violators may receive written warnings and may be fined for repeat violations. Flow restrictors may be installed at properties with serious repeat violations. **Philosophy: drought monitors want to help customers comply, not just penalize violators. The goal is to use education to help customers save water.** **Recruitment.** A drought monitor's only responsibility is to enforce the drought response measures. Temporary employees will be recruited for this function, and those hired must be able to interact with the public and communicate the drought restrictions. Thorough background checks are required. **Training.** Drought monitors will undergo an intense training program to prepare them to patrol the service area. Dispatchers and data entry staff will participate in the training program, which will address: ➢ Dealing with irate customers 27	Cheesman, Antero, and Strontia Springs reservoirs, Denver Water's system would remain vulnerable to unplanned outages. Loss of operation to these South Platte River facilities could affect the ability to deliver water to a downstream interconnect. In summary, the Purpose and Need of the Project is to add new yield to the Moffat system at the location where it is needed. A connection between the North System and the South System does not meet this Project purpose. Similarly, a South System connection does not help to reduce the imbalance of the system and the vulnerability created by that imbalance. Various alternatives that used the South Platte Basin as a component of an alternative were considered. In addition, these alternatives did not survive the Cost Screen because of the high cost of delivery to the Moffat Collection System. ***Comment #767-9*** *(ID 5202)**:*** *Percent System Changes The MCSP as proposed in the DEIS would increase DW's system yield from 345,000 AF to 363,000 AF, not including DW's 30,000 AF Safety Factor, which represents a 5% increase. However, as shown on the table below, the Fraser River's native water supplies have already been depleted by 73% at one location (Fraser River near Winter Park, the only gage with streamflow records that pre-date the Moffat Project). The projected additional depletions between now and Buildout will further reduce the natural streamflows by over 80%. [SEE SOURCE FILE FOR TABLE, FRASER RIVER STREAM FLOW NEAR WINTER PARK.] The DEIS does not contain a similar table for the Blue River basin. Table 12 was developed based on recorded streamgage data and information from the DEIS, which shows that approximately 39% of the native Blue River streamflow will remain following completion of the MCSP. The DEIS reaches a flawed conclusion that the preferred alternative is the 'least damaging practicable*

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	➢ Reading meters ➢ Understanding the drought restrictions ➢ Operating irrigation systems ➢ Passing driving tests ➢ Knowing the boundaries of their patrol area ➢ Understanding the data entry equipment **Documentation.** Drought monitors will use hand-held data entry devices that allow them to issue tickets in the field. This system will keep track of the number of violations for each customer and enable the drought monitor to ascertain the appropriate-level violation. Drought monitors will also keep track of stops that did not result in a ticket or written warning but were merely educational in nature. **Appeals.** Any person subject to a charge for violating a drought restriction may appeal, as stipulated in Chapter 19 of the Operating Rules. Although the customer must pay the water bill by its due date, the disputed charge will be credited on the next bill if the appeal is approved. ***Incentives*** A program of incentives will be designed to encourage immediate reductions in water consumption. This program may or may not be an extension of Denver Water's long-term water conservation program and may include such features as: ➢ Rebates ➢ Contests ➢ Drought Hero Awards ➢ Landscape clinics ➢ Conservation kits. ***Monitoring and Evaluation*** When the Denver Water Board declares a drought, the staff will intensify its monitoring and evaluation activities. The monitoring and evaluation program will track water savings and compare them with normal use and weather-adjusted expected use. If water use is not being reduced, modifications to the Drought Response Plan may be recommended. **Historical demand.** Denver Water will compare water use during the drought with historical, population-adjusted average use. Comparing water use trends helps Denver Water plan for water use during various seasonal periods. These comparisons can also be used to predict expected water savings. **Weather-adjusted demand.** Customers' water use patterns during the irrigation season are significantly correlated with weather. Denver Water has developed a weather model to track typical water use under actual weather conditions and in the absence of restrictions. **Reservoir levels.** Denver Water always monitors its reservoir levels. During a drought, reservoir storage levels are included in weekly reports because they are the determining factor when the status of a drought is evaluated. **Tracking forecasts.** Denver Water has developed a model to predict spring runoff based on factors that affect supply (weather, snowpack, soil moisture, runoff, water rights, bypass 28	*alternative' by further depleting an overdepleted stream system to result in a modest gain to the yield of DW's system. [SEE SOURCE FILE FOR TABLE 12, SUMMARY OF BLUE RIVER STREAMFLOW AND DIVERSIONS BLUE RIVER BELOW DILLON RESERVOIR AVERAGE ANNUAL FLOW (ACRE-FEET).]* **Response #767-9:** The Purpose of the Moffat Project is to develop 18,000 AF/yr of new firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant to meet their projected shortfall in supplies and address reliability, vulnerability, and flexibility issues as described in DEIS Chapter 1. In addition, Table 12 referenced in the comment includes averages for several different periods. The period from 1911 through 1950 that was used to develop the average annual native flow above Dillon Reservoir may be hydrologically different (wetter or dryer overall) than the PACSM study period from 1947 through 1991. To accurately calculate the remaining average annual flow and percent of native flow volume remaining, a consistent study period must be used. ***Comment #767-12*** *(ID 5201)**:*** *Proposed Mitigation Chapter 4 and Appendix M present the proposed mitigation for the MCSP. DW proposes minimal levels of mitigation for water quality, stream morphology and sedimentation, wetlands, riparian vegetation, aquatic life, among other facets, but does not propose any mitigation for loss of streamflow. Rather, the DEIS concludes that the loss of streamflow is unavoidable. In fact, the west slope water entities have made it well known that additional water supplies to the Fraser, Blue and Colorado river basins are critically needed at times. The proposed mitigation needs to include additional water supplies to these basins to meet these critical streamflow, aquatic habitat, water quality and water supply needs prior to*

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	requirements, collection system limitations, and water use). Denver Water tracks three forecasts: one for average conditions, one for wet conditions, and one for dry conditions. The wet and dry conditions used in the model have a 10 percent probability of being exceeded. **Snowpack readings.** When first snow falls in Denver Water's watersheds, staff members begin to collect snowpack readings. These readings convert snowfall depth into equivalent measurements of water. **Precipitation.** Spring weather has a significant impact on runoff into reservoirs and thus on the health of landscapes in Denver Water's service area. Denver Water continuously collects precipitation data from weather stations in its watersheds and in its service area. **Monthly Financial Updates.** The Finance Division will provide monthly updates on Denver Water's billed revenue and budget status. **Use of Water Not Provided by Denver Water** Some customers may have access to water sources that are not owned, controlled or provided by Denver Water. Though the use of such water during a Stage 2, 3, or 4 Drought is not under the direct control of Denver Water, the following rules apply to the owner or occupant of a licensed premise using non-Denver water. Failure to comply with these rules will be deemed a violation of drought restrictions under Denver Water's Operating Rules. To ensure that the water is, in fact, not Denver Water's, the customer shall provide certification of the source of the water and demonstrate that the water is being used in compliance with any legal restrictions on the use of water from that source. To avoid confusing the public, any premises where non-Denver water is being applied shall display prominent signage indicating that Denver Water is not supplying the water. To avoid potential contamination of Denver Water's potable water supply system, any irrigation or other system using non-Denver water shall be physically disconnected from Denver Water's potable system. In addition, the Denver Water service line providing potable water to the premises must include an approved backflow prevention device, and the customer must execute a Dual Water Supply Agreement with Denver Water. To prevent water waste, which could increase the customer's need for Denver Water's supplies, irrigation with non-Denver water shall be prohibited during the hours from 10:00 a.m. to 6:00 p.m. 29	*increasing the depletions from a stream already heavily impacted by historic diversions. Appendix M to the DEIS indicates that DW proposes to increase the elevation of the Gross Reservoir enlargement by six feet to create a 5,000 af "Environmental Pool" for the benefit of streamflows on 17 miles of South Boulder Creek. The proposed mitigation is completely flawed in that it proposes to increase the environmental condition to a stream that is already improved by additional imports from the Moffat project, whereas there is no reported mitigation to improve the environmental condition of the source area stream that is already depleted of 60,000 af/yr of natural streamflow along approximately 57 miles of impacted stream within the MCSP study area.* **Response #767-12:** FEIS Appendix M contains conceptual mitigation proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. ***Comment #767-13*** *(ID 5200)**:*** *DW's South Platte River Supplies Prior to the development of any additional diversions from river systems that are already heavily depleted (see for example Table 11 showing depletions of approximately 70% of the pre-project supplies at the Hot Sulphur Springs), DW should be required to maximize the use of its existing and future South Platte River basin water rights and water supplies. [SEE SOURCE FILE FOR TABLE 11, SUMMARY OF COLORADO RIVER STREAMFLOW AND DIVERSIONS COLORADO RIVER AT HOT SULPHUR SPRINGS AVERAGE ANNUAL FLOW (ACRE-FEET).] • The DEIS indicates that during the average five dry years shown, DW projects to release water from Dillon Reservoir to meet*

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	Stage 1 Drought Response **July 1 Storage Trigger:** Reservoirs less than 80% full **Use Reduction Target:** 10% ***Description*** A Stage 1 Drought is triggered by actual or forecast July 1 reservoir storage of 80 percent. This stage is meant to warn customers that water levels are significantly below average and continued dry weather could trigger a Stage 2 Drought. Recommended responses to a Stage 1 Drought include: ➢ Set the tone for a dry irrigation season. ➢ Reduce water demand to prevent progression to a Stage 2 Drought. ➢ Request that customers voluntarily reduce their water use by 10 percent. ➢ Enact the Stage 1 Drought restriction clause in contracts. ➢ Warn of and prepare for a Stage 2 Drought. As a part of responding to a Stage 1 Drought, Denver Water will: ➢ Acquaint customers with measures they can expect if the drought continues or intensifies. ➢ Invite public discussion on water use priorities and ways to cut water use. ➢ Contact special interest groups that use large volumes of water (for example, water recreation groups) to get their ideas and support. ➢ Publish suggestions for temporarily reducing water use. ➢ Require master meter water distributors to activate similar programs with their customers. Denver Water's Drought Response Committee will monitor drought conditions and evaluate the effectiveness of the Stage 1 Drought response. Recommendations for adjusting the response will be submitted to the Board of Water Commissioners. ***Voluntary Restrictions*** **Restaurants** Restaurants and catering businesses will be asked to voluntarily restrict serving water with meals except at the customer's request. **Lodging** Lodging establishments will be asked to voluntarily reduce the frequency of sheet changing for guests staying more than one night, except for health or safety reasons. Food service operations in lodging establishments will be asked to voluntarily restrict serving water with meals except at the customer's request. **Irrigation** Customers will be asked to voluntarily reduce outdoor water use, using their own methods and Denver Water's suggestions. 30	*system demands. As shown on Figure H-2.8, Dillon contents will be approximately 35,000 AF less than Current Conditions dry year, and will be approximately 139,000 af below capacity. While at the same time, DW's Antero and Elevenmile Reservoir remain essentially full during the five dry years shown in the DEIS (see Figures H 2-29 and 2-32). In fact, the DEIS shows that these reservoirs will have more water stored in them during dry years than during average years. Given the magnitude of the aquatic, recreational, economic, visual and other values associated with Dillon Reservoir, the DEIS appears to inappropriately burden the West slope supplies and increase environmental effects while preserving to a maximum extent the East Slope supplies. The DEIS on page 3-57 indicates that DW uses these facilities for drought reserves, but provides no reasonable explanation why Dillon Reservoir cannot be used to accomplish this same purpose instead of these comparatively unused reservoirs. • The City Ditch is another example where DW is currently letting an immensely valuable South Platte water right go unused. By contract, DW is currently entitled to receive 13 cfs of a very senior water right for 30 cfs from the South Platte River near Chatfield Reservoir. DW has historically used this ditch since 1861 to serve portions of its service area. In recent decades, DW has used this ditch to irrigate various parks, golf courses and other areas within its service area. However, DW discontinued use of this water right in 2001 and converted these uses to reusable effluent. DW is allowing a senior water right capable of delivering approximately 5,500 af/yr of water supplies to go unused. The alternatives analysis for the MCSP is flawed in that DW, which still owns this water right, and potentially others, that could be used to meet the P&N. Moreover, DW the alternatives that incorporate the reuse of effluent are limited to 5,000 af/yr due, in part, to the lack of availability of reusable effluent. DW appears to have effectively, and intentionally,*

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	Watering during the heat of the day is less efficient than watering during the morning and evening hours because of water losses through evaporation. To minimize water waste, watering is prohibited between the hours of 10:00 a.m. and 6:00 p.m. In addition, all permissible watering shall be conducted without any water waste (for example, avoid runoff on driveways or sidewalks). **Water Budgets for Large-Volume Users** Customers in the High Public Use category shall manage water use in a way that reduces their seasonal water use by 10 percent. ***Surcharges*** A surcharge program may be designed to help achieve overall water reduction goals. ***Fixed-Amount Water Contracts*** Water deliveries to customers who receive untreated water, nonpotable water or potable water under fixed-amount contracts will be restricted as follows: ➢ For agreements with provisions allowing reduced deliveries under drought conditions, the amount delivered shall be reduced by 10 percent. ➢ For agreements with provisions requiring the lessee to adopt the same or similar water use restrictions as Denver Water, the lessee shall implement the water use restrictions adopted by the Board. ➢ For agreements without these provisions, the Board may adopt drought surcharges or other methods to reduce water consumption outside Denver as necessary to provide an adequate supply of water to the people of Denver. 31	*abandoned a very senior irrigation right in the native South Platte basin in favor of reusable effluent. If DW were to maximize its existing decreed native basin supplies, it would result in additional yield of reusable supplies and reduce the need for additional depletions from the Fraser River.* **Response #767-13:** Denver Water does operate their system to maximize the use of their existing South Platte Basin water rights to achieve the greatest firm yield possible for their system. Both Antero and Eleven Mile Canyon reservoirs are operated for long-term drought storage because once drawn down, these reservoirs may require multiple seasons to refill because of limited physical supply, relatively high evaporation rates, and their water rights are junior relative to other East Slope rights. Denver Water's storage rights for Antero and Eleven Mile Canyon reservoirs are junior relative to other East Slope rights whereas Dillon Reservoir's storage right and operating agreements enable it to operate as relatively senior in the Upper Blue River Basin. The legally and physically available supply to Dillon Reservoir is typically sufficient to refill that reservoir more quickly after being drawn down. If Antero and Eleven Mile Canyon reservoirs were drawn down on a more regular basis as suggested in the comment, then those supplies would not be available to Denver Water during a drought, which would likely reduce their firm yield and require additional withdrawals from Dillon Reservoir in dry years. Supplies at Antero and Eleven Mile Canyon reservoirs are preserved to the extent necessary to maximize Denver Water's firm yield and maintain system reliability and operational flexibility. While Antero and Eleven Mile Canyon reservoirs appear to be maintained essentially full in dry years, they are drawn down in a drought. For example, PACSM results show that under the Proposed Action, Antero Reservoir is drawn down completely in 1955, 1956 and most of

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	Stage 2 Drought Response **July 1 Storage Trigger:** Reservoirs less than 65% full **Use Reduction Target:** 30% ***Description*** A Stage 2 Drought is triggered by actual or forecast July 1 reservoir storage of 65 percent. When July 1 reservoir levels are forecast at or below 70 percent, Denver Water will begin planning for a potential Stage 2 Drought. The staff may recommend activating a Stage 2 Drought response at a reservoir storage level of higher than 65 percent, depending on drought conditions and other indicators. A Stage 2 Drought imposes mandatory water use restrictions and requires a significant effort on the part of customers. ***Mandatory Restrictions*** **Restaurants** Restaurants and catering businesses shall not automatically serve water with meals but may serve water when a customer requests it. Restaurants must comply with Denver Water's signage requirements to explain this restriction. **Lodging** Lodging establishments shall not change sheets more often than every four days for guests staying more than one night, except for health or safety reasons. Food service operations in lodging establishments shall not automatically serve water with meals but may serve water when customers request it. Lodging establishments must comply with Denver Water's signage requirements to explain these restrictions. **Turf Irrigation** **Assigned times.** Each turf zone shall receive no more than 15 minutes of irrigation on average on the assigned watering day. All irrigation control systems must be programmed or operated manually to limit irrigation to 15 minutes per zone on average. Any area irrigated by a sprinkler attached to a movable hose shall also be limited to 15 minutes of watering on average on the assigned watering day. The Board of Water Commissioners may by formal action establish a maximum total amount of time during which irrigation may occur at a single property. Watering during the heat of the day is less efficient than watering during the morning and evening hours because of water losses through evaporation. To minimize water waste, watering is prohibited between the hours of 10:00 a.m. and 6:00 p.m. In addition, all permissible watering shall be conducted without any water waste. **Assigned days.** Watering shall be limited to two days per week in accordance with the schedule outlined in Table 3. 32	1957, and is also drawn down significantly in 1965, 1978, and 1979. Eleven Mile Canyon Reservoir is drawn down in similar years, however, unlike Antero Reservoir it is not drained completed in the mid-1950's drought because a portion of the Strategic Reserve is maintained in that reservoir. Of the years listed above only 1955 was identified as one of the five driest years which were averaged to develop Figures H-2.29 and H-2.32. As a result, the average dry year figures for those reservoirs don't illustrate the manner in which these reservoirs are typically used in the late stages of a drought or the year after a significant dry year. The FEIS was revised to provide additional discussion and explanation of the use of Antero and Eleven Mile Canyon reservoirs during droughts in comparison to Dillon Reservoir. Denver Water did not abandon or discontinue using the City Ditch water right in 2001. Denver Water is still using the City Ditch water right for existing commitments served by the ditch. Several parks previously served by the City Ditch are now being served by previously unused reusable supplies. This change in supply source does not increase the draw on the Western Slope. The City Ditch supply is not a reusable supply. The City Ditch right is not decreed for use in the treated water system and cannot be used to supply water to the Moffat Collection System, therefore, it does not meet the Purpose and Need for the Moffat Project. Denver Water has numerous senior South Platte water rights including exchange rights at its facilities that can divert water that might otherwise be diverted by the City Ditch, which enables Denver Water to maximize use of its decreed South Platte River supplies. The firm yield associated with reusable supplies was limited to 5,000 AF/yr due to cost constraints, available gravel pit storage along the South Platte River necessary for both regulating and firming reusable supplies, and potential water quality issues associated with blending reusable supplies with

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	Table 3. Landscape irrigation calendar under a Stage 2 Drought Type of Property: Watering Days Single-family residential properties with odd-numbered addresses: Saturday and Wednesday Single-family residential properties with even-numbered addresses: Sunday and Thursday All others (multifamily residential properties; homeowners associations; commercial, industrial and government sites): Tuesday and Friday Parks, schools, athletic fields: Monday **Irrigation of New Turf Sod** Denver Water will work cooperatively with the landscape industry and customers to achieve compliance with recommended new turf sod installation guidelines. Denver Water staff may also conduct spot inspections of point-of-purchase sites and installations to ensure adequate education of customers and appropriate soil preparation. New turf sod installations may be watered daily for up to 21 days, but not between 10:00 a.m. and 6:00 p.m. **Irrigation of New Turf Seed** New turf seed applications may be watered daily at any time for up to 28 days. This exemption does not apply to over-seeding of existing lawns. **Water Budgets for Large-Volume Users** Customers in the High Public Use category will be required to manage water use in a way that reduces their seasonal water use by 30 percent. Turf watering restrictions will not apply to them, so long as they accomplish irrigation without water waste. **Irrigation of Trees and Shrubs** Trees and shrubs may be watered by means of a hand-held hose or low-volume nonspray irrigation on assigned watering days. From May 1 to October 1, trees and shrubs may not be watered between the hours of 10:00 a.m. and 6:00 p.m. **Irrigation of Flowers and Vegetables** Flowers, vegetables, and plantings in community gardens may be watered any day except Monday by means of a hand-held hose or low-volume nonspray irrigation. From May 1 to October 1, nonspray irrigation may not occur between the hours of 10:00 a.m. and 6:00 p.m. **Irrigation System Installation, Operation and Repair** An irrigation system may be operated outside the watering schedule for installation, repair or reasonable maintenance, so long as the system is attended throughout the period of operation and water waste does not occur. All irrigation control systems must be reprogrammed or operated manually to operate in compliance with the watering calendar. 33	Moffat Collection System supplies. ***Comment #767-11*** *(ID 5199)**:*** *Summary Based on our review and analysis of the hydrologic information contained in the DEIS as described above, it is our opinion that the DEIS conclusions regarding hydrologic changes, and therefore the resource effects, may be significantly inaccurate for all of the river segments effected by the MCSP. The hydrologic data set used in PACSM does not include some of the most extreme hydrologic conditions for the source area streams, and significantly understates dry-year conditions. Further, it does not accurately portray existing conditions and appears to significantly understate changes in diversions and overstate streamflow conditions. The information does not support an analysis of effects due to cumulative overall depletions to the stream systems or to the conversion of historically diverse hydrology to significant periods of minimum streamflows. The use of blended averages obscures and diminishes the actual daily, monthly and yearly changes that are likely to occur, as well as the extreme changes in very wet or dry years, which should be disclosed for review and consideration with regards to the hydrologic and flow-related resource effects. Finally, the DEIS provides virtually no streamflow mitigation, and in fact projects to increase the frequency and duration of existing bypass flow reductions, to a stream system that is currently suffering from water supply and environmental flow shortages. These concerns, and the associated resource effects, should be more thoroughly evaluated by the US Army Corps of Engineers prior the further consideration of this project.* **Response #767-11:** The model study period used in the DEIS (from 1947 through 1991) provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts. The potential of extending the study period

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	Early Winterization and Spring Watch Programs Outdoor lawn watering shall be prohibited between October 1 and May 1. Watering turf areas that are heavily used by the community—for example, athletic and playing fields, tees and greens at golf courses—is not prohibited but must be conducted without water waste. **Outdoor Nonirrigation Uses** **Fountains and waterfalls.** Customers shall be prohibited from operating any existing outdoor fountain or waterfall that sprays water into the air. **Outdoor misting devices.** Operating outdoor misting devices shall be prohibited. **Vehicle Washing** **Personal vehicles.** Personal vehicles may be washed using only a bucket or a hand-held hose equipped with an automatic shutoff nozzle. From May 1 to October 1, personal vehicles may not be washed on Monday or between the hours of 10:00 a.m. and 6:00 p.m. From October 1 to May 1, personal vehicles may be washed without day-of-the-week or time-of-day restrictions. **Fleet vehicles.** Vehicles used in commercial operations or fleets may be washed no more often than once per week, unless public safety requires more frequent washing, and only by means of a car wash or washing equipment certified by Denver Water. **Commercial car washes.** Commercial car washes are subject to a certification program requiring implementation of industry best management practices to achieve a 30 percent water savings compared with the water use of nonrecycling car washes. Any commercial car wash that is not certified or in the process of becoming certified shall be deemed in violation of this provision. **Power Washing** **Power washing by individuals.** Using water instead of a broom or mop to clean outdoor impervious surfaces such as sidewalks, driveways and patios is prohibited, except when cleaning with water is necessary for public health or safety reasons or when other cleaning methods are impractical. Power washing that is permitted may occur only on the assigned watering days indicated in Chapter 19 of Denver Water's Operating Rules and not between the hours of 10:00 a.m. and 6:00 p.m., except for immediate health or safety reasons. **Commercial power washing.** Commercial enterprises for which cleaning with water is an essential element of business are not subject to day-of-the-week or time-of-day restrictions but shall use only high-efficiency equipment certified by Denver Water and must assure that water waste does not occur. **Swimming Pools** No restrictions will be imposed on the on use or operation of swimming pools. 34	and/or using additional periods for comparative analyses was considered in relation to whether these alternative hydrologic inputs would change conclusions regarding the yield of the Moffat System and/or change conclusions related to effects on hydrologic and other resource areas. With regard to inclusion of more recent hydrology, Denver Water would not divert additional water due to the proposed Moffat Project in drought years like 2002 because Denver Water would have already diverted the maximum amount of water physically and legally available under their existing water rights without additional storage in their system. Denver Water's analysis also concluded that, for Denver Water's system, the mid-1950's drought is a more severe drought period than the recent drought. In other words, given full-use water demands, supplies, and facilities, there would be less water in Denver Water's storage at the end of the 1950's drought than at the end of 2002. The model study period used in the DEIS also addressed the carry-over and recovery effects of additional Denver Water diversions in wet years following dry years like 2002 and 2003. The DEIS study period includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill storage. For example, the DEIS study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980's. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives for both direct effects and cumulative effects because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. Extension of the modeling period and consideration of tree-ring data to include

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	Surcharges A surcharge program will be designed to support the water use restrictions and to help achieve overall water use reduction goals. ***Fixed-Amount Water Contracts*** Water deliveries to customers who receive untreated water, nonpotable water or potable water under fixed-amount contracts will be restricted as follows: ➢ For agreements with provisions allowing reduced deliveries under drought conditions, the amount delivered shall be reduced by 30 percent. ➢ For agreements with provisions requiring the lessee to adopt the same or similar water use restrictions as Denver Water, the lessee shall implement the water use restrictions adopted by the Board. ➢ For agreements without these provisions, the Board may adopt drought surcharges or other methods to reduce water consumption outside Denver as necessary to provide an adequate supply of water to the people of Denver. ➢ Any water delivered by Denver Water between May 1 and October 1 shall not be used for spray irrigation between the hours of 10:00 a.m. and 6:00 p.m. ***Enforcement*** The customer (owner or occupant of the property) shall be responsible for complying with drought restrictions and with the terms of any exemption granted. Those who violate any Stage 2 Drought restriction will be subject to penalties. **First Violation** The owner or occupant will be advised in writing that a monetary charge will be added to the water bill for subsequent violations. **Second Violation** The owner or occupant will be advised in writing, and a $250 charge may be added to the water bill. **Third Violation** The owner or occupant will be advised in writing, and a $500 charge may be added to the water bill. **Fourth and Subsequent Violations** The owner or occupant will be advised in writing, and a $1000 charge may be added to the water bill. In addition, Denver Water may install a flow restrictor on the service line to remain in place during the irrigation season or may temporarily suspend service until the cause of the violation is corrected and all outstanding penalty and water service charges have been paid. 35	additional dry years would not substantially change the range of hydrologic conditions or the predicted impacts to flows as a result of the proposed Moffat Project. While tree ring-based reconstructions of Colorado River flows may show greater hydrologic variability than that reflected in the gaged record, particularly with respect to drought, the inclusion of more severe dry years in the study period would not change the evaluation of hydrologic impacts due to the Moffat Project because the Moffat Project would not increase diversions in these years over the diversions that would take place without the Project. In summary, modifications to the modeled study period and the use of paleo-hydrology is not warranted. Please see the responses to Comment IDs 5217 and 5227. FEIS Appendix M presents the plan to provide compensatory mitigation for unavoidable adverse effects associated with the Moffat Project. The Current Conditions scenario does not presented an idealized depiction of current hydrology that would maximize water demands and water diversions throughout the PACSM study period. The Full Use of the Existing System scenario demonstrates that Denver Water could meet at higher average annual demand (345,000 AF/yr) and divert additional water throughout their system using their existing system infrastructure and water rights without any additional storage on-line in the Moffat System. It is not appropriate to compare Current Conditions model data to historical data for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and

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	Stage 3 Drought Response **July 1 Storage Trigger**: Reservoirs less than 40% full **Use Reduction Target**: 50% ***Description*** A Stage 3 Drought is triggered by actual or forecast July 1 reservoir storage of 40 percent. A Stage 3 Drought imposes mandatory water restrictions on Denver Water's customers. Stage 3 Drought restrictions are severe and may result in significant damage to landscapes. ***Mandatory Restrictions*** **Restaurants** Restaurants and catering businesses shall not automatically serve water with meals but may serve water when a customer requests it. Restaurants must comply with Denver Water's signage requirements to explain this restriction. **Lodging** Lodging establishments shall not change sheets more often than every four days for guests staying more than one night, except for health or safety reasons. Food service operations in lodging establishments shall not automatically serve water with meals but may serve water if a customer requests it. Lodging establishments must comply with Denver Water's signage requirements to explain these restrictions. **Turf Irrigation** Irrigation of turf shall be **prohibited**. **Irrigation of New Turf Sod** Irrigation of new turf sod shall be **prohibited**. **Irrigation of New Turf Seed** Irrigation of new turf seed shall be **prohibited**. **Water Budgets for Large-Volume Users** Customers in the High Public Use category will be required to manage water use in a way that reduces their seasonal water use by 50 percent. Turf watering restrictions will not apply to them so long as they accomplish irrigation without water waste. **Irrigation of Trees and Shrubs** Existing trees and shrubs may be watered by means of a hand-held hose or low-volume nonspray irrigation no more than once a week in accordance with the schedule outlined in Table 4. From May 1 to October 1, trees and shrubs may not be watered between the hours of 10:00 a.m. and 6:00 p.m. No new trees or shrubs may be planted. **Assigned days.** Irrigation of trees and shrubs shall be limited to one day per week in accordance with the schedule shown in Table 4. 36	Project operations have changed. For example, it is inaccurate to evaluate the effects of future diversions on flows in the Colorado River at the Hot Sulphur Springs gage based on a comparison with historical flows at that gage because historical flows prior to 1985 do not include the effects of the existing Windy Gap Project, which came on-line that year. ***Comment #767-7*** *(ID 5198)**:*** *["References cited in Petros & White, LLC letter on behalf of Summity County, dated 3/17/10."] References Colorado Division of Water Resources' Colorado Decision Support Systems (CDSS) website: http://cdss.state.co.us/DNN/default.aspx. Draft Environmental Impact Statement for the Moffat Collection System Project, October 2009. Hydrosphere, May 2003, Upper Colorado (UPCO) River Basin Study PACSM Data Display Tool. Pitlick, J., and P. Wilcock, 2001, Relations between streamflow, sediment transport, and aquatic habitat in regulated rivers, in Geomorphic Processes and Riverine Habitat, edited by J. Dorava, et al., pp. 185-198, AGU, Washington, D.C. Rathburn, S., D. Merritt, E. Wohl, J. Sanderson, H. Knight, 2009, Characterizing environmental flows for maintenance of river ecosystems: North Fork Cache la Poudre River, Colorado, in Geological Society of America, Special Paper 451. Tetra Tech, et al, April 2008, Grand County Stream Management Plan. U.S. Dept of Interior, U.S. Geological Survey's website: http://waterdata.usgs.gov/co/nwis/current/?type=flow&group_key=basin_cd.* **Response #767-7:** The references were entered into the public record for the Moffat Project.

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	Table 4. Tree and shrub irrigation calendar under a Stage 3 Drought	

Type of Property	Watering Day
Single-family residential properties with odd-numbered addresses	Saturday
Single-family residential properties with even-numbered addresses	Sunday
All others (multifamily residences; homeowners associations; commercial, industrial and government sites)	Wednesday

Irrigation of Flowers and Vegetables
Existing flowers, vegetables, and plantings in community gardens may be watered any day by means of a hand-held hose or low-volume nonspray irrigation. From May 1 to October 1, these plants may not be watered between the hours of 10:00 a.m. and 6:00 p.m. No new flowers or vegetables may be planted.

Irrigation System Installation, Operation and Repair
An irrigation system may be operated for installation or repair, so long as the system is attended throughout the period of operation and water waste does not occur.

Outdoor Nonirrigation Uses

Fountains and waterfalls. Customers shall be prohibited from operating any existing outdoor fountain or waterfall that sprays water into the air. No new outdoor fountain or waterfall may be put into operation during a Stage 3 Drought.

Misting devices. Operating outdoor misting devices shall be prohibited.

Vehicle Washing

Personal vehicles. Washing personal vehicles shall be prohibited except at commercial car washes certified by Denver Water.

Fleet vehicles. Vehicles used in commercial operations or fleets may be washed no more often than once a month, unless public safety requires more frequent washing. Fleet vehicles may be washed only by means of a car wash or washing equipment certified by Denver Water.

Commercial car washes. Commercial car washes are subject to a certification program requiring a 50 percent water savings compared with the water use of nonrecycling car washes. Any commercial car wash that is not certified or in the process of becoming certified shall close down its washing operations three days each week, as designated by Denver Water, in order to save water.

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	Power Washing **Power washing by individuals**. Using water instead of a broom or mop to clean outdoor impervious surfaces such as sidewalks, driveways and patios is prohibited, except when cleaning with water is necessary for immediate public health or safety reasons. **Commercial power washing**. Commercial enterprises shall clean with water only for health or safety purposes and shall use only high-efficiency equipment certified by Denver Water and assure that water waste does not occur. **Swimming Pools** Single-family residential pools shall not be filled or refilled. Operation of other pools will be permitted. **Hydrant Permits** Water obtained by means of a hydrant permit shall not be used to clean equipment or for any other use prohibited during a Stage 3 Drought. ***Surcharges*** A surcharge program will be designed to support the water use restrictions and to help achieve overall water use reduction goals. ***Fixed-Amount Water Contracts*** Water deliveries to customers who receive untreated water, nonpotable water or potable water under fixed-amount contracts will be restricted as follows: ➢ For agreements with provisions allowing reduced deliveries under drought conditions, the amount delivered shall be reduced by 50 percent. ➢ For agreements with provisions requiring the lessee to adopt the same or similar water use restrictions as Denver Water, the lessee shall implement the water use restrictions adopted by the Board. ➢ For agreements without these provisions, the Board may adopt drought surcharges or other methods to reduce water consumption outside Denver as necessary to provide an adequate supply of water to the people of Denver. ➢ Any water delivered by Denver Water between May 1 and October 1 shall not be used for otherwise permissible irrigation between the hours of 10:00 a.m. and 6:00 p.m. ***Enforcement*** The customer (owner or occupant of the property) shall be responsible for complying with the drought restrictions and with the terms of any exemption. Those who violate any Stage 3 Drought restriction will be subject to penalties. 38	

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	First Violation The owner or occupant will be advised in writing that a monetary charge will be added to the water bill for subsequent violations. **Second Violation** The owner or occupant will be advised in writing, and a $1000 charge may be added to the water bill. **Third and Subsequent Violations** The owner or occupant will be advised in writing, and a $1500 charge may be added to the water bill. In addition, Denver Water may install a flow restrictor on the service line to remain in place during the irrigation season or may temporarily suspend service until the cause of the violation is corrected and all outstanding penalty and water service charges have been paid. 39	

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	Stage 4 Drought Response **July 1 Storage Trigger**: Reservoirs are 25% full **Use Reduction Target**: 66% reduction ***Description*** A Stage 4 Drought is triggered by actual or forecast July 1 reservoir storage of 25 percent. A Stage 4 Drought activates a rationing program for Denver Water's customers. **Conditions that would lead to a Stage 4 Drought are highly unlikely**. However, if combined reservoir storage falls below 25% full, Denver Water will implement a **rationing program** to ensure that customers receive water for essential uses for an indefinite period of time. No outdoor watering will be allowed, and indoor water use will be restricted. Stage 4 Drought restrictions are severe and will probably result in long-term damage to landscapes. ***Mandatory Restrictions*** **Turf Irrigation** Irrigation of turf shall be **prohibited**. **Irrigation of Trees and Shrubs** Outdoor watering shall be limited to monthly tree watering. **Outdoor Nonirrigation Uses** Nonessential water uses shall be eliminated. **Indoor Water Use** A rationing program will be designed to minimize indoor water use. 40	

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	PUBLIC OUTREACH If the Drought Response Plan is to be effective, Denver Water must communicate effectively with its customers. Drought affects a wide variety of water users, and Denver Water's ability to inform the public of the water supply situation will determine the success of the plan. **Communication During Drought** A communication program designed for a drought crisis involves three components: ➢ Public involvement ➢ Customer information ➢ Media relations. These efforts will overlap somewhat, and some will be conducted simultaneously. For example, the news media will always provide the most immediate means of communicating with the public because their representatives will be present at every Board meeting to report any change in drought conditions or response measures as soon as they are announced. But Denver Water cannot rely exclusively on the media for communicating with customers because news stories cannot be guaranteed to cover information in sufficient detail. Denver Water must also have direct communication with our customers. If the drought is severe and requires the Board to impose mandatory restrictions on water use or surcharges for higher levels of water use, public involvement efforts will be necessary along with direct notices to customers. Only a printed notice mailed to every customer can assure that customers have the information they need to comply with a set of restrictions. Designing a surcharge program requires at least one public meeting to sample public opinion about water use levels and charges. Drought, like any other crisis, demands immediate and frequent communication with customers and with the public as a whole. During a drought, Denver Water will use all its means of communicating, including direct mailings to every customer, daily Web site updates, water bill inserts, electronic newsletters, announcements in neighborhood and homeowners association newsletters, the Speakers Bureau, public meetings, interest group meetings and consultations, Citizens Advisory Committee mailings and meetings, mass market advertising and media relations. 42	

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	Outline for a Drought Communication Plan Once the Board has identified a specific drought stage, Denver Water's Community Relations staff will develop an appropriate communications plan based on the elements specified in the Outline for a Drought Communication Plan. **February** ➢ Select advertising agency to assist staff with mass media advertising campaign. ➢ Announce "Spring Watch" (voluntary ban on lawn watering), subject to Board decision. ➢ Promote relevant news story topics to media and respond to media inquiries. **March** ➢ Begin developing message-of-the-week program. ➢ Reinforce voluntary ban on lawn watering. ➢ Board contracts with ad agency. ➢ Community Relations staff and agency begin work on campaign. ➢ Hold public meeting about surcharges. ➢ Promote relevant news story topics to media and respond to media inquiries. **April** ➢ Begin disseminating message of the week. ➢ Reinforce voluntary ban on lawn watering. ➢ Promote relevant news story topics to media and respond to media inquiries. ➢ Board determines drought stage and corresponding drought response measures. ➢ Post drought stage and response measures on Web site. ➢ Intensify media relations. ➢ Community Relations staff prepares and mails notices to all customers. ➢ Board approves ad campaign. **May** ➢ Disseminate message of the week. ➢ Ad campaign begins. ➢ Mail notices of drought response measures to all customers. ➢ Promote relevant news story topics to media and respond to media inquiries. **Customer Survey** In September 2003, Denver Water commissioned a survey to gauge customer attitudes toward the 2002–2003 drought. Focus group sessions were also conducted. The majority of survey and focus group respondents stated that Denver Water's response to the drought was "about right." Most participants supported restrictions, viewing them as a positive step in managing water use. Survey results showed that customers wanted Denver Water to initiate a strong response in times of drought. Most respondents agreed that restrictions during the 2002–2003 drought were easy to understand and that changes in the restrictions were not confusing. 43	

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	Results of the survey influenced this Drought Response Plan and will continue to shape future plans. Further consultation with customers through surveys and other means may be required if future Drought Response Plans differ significantly from this one. **Communication with Interest Groups** Conservation and Community Relations staff and certain members of the Drought Enforcement Committee will continue ongoing discussions with groups that are particularly affected by drought restrictions, e.g., members of the green industry, car wash businesses and manufacturers. These groups will receive advance notice about any restrictions under consideration and will have an opportunity to articulate their positions at Board meetings. **Other Front Range Water Providers** Experience has shown that not all Front Range water providers face water shortages of the same severity and that each provider responds to shortages accordingly. What other water providers are doing can affect how customers perceive Denver Water's policies, and Denver Water's manager serves as its link to other water providers in the area. An open question is whether a meeting of all these utility managers could facilitate agreement on certain fundamental policies such as watering schedules and times. An effort to jointly sponsor a mass media campaign in 2003 was a limited success at best; some water districts lifted restrictions before the campaign was ready to begin, whereas others continued restrictions throughout the summer. **Comments from the Public** Community Relations staff will collect comments from the public through e-mail and telephone messages, compile and submit them to Board members at each Board meeting. 44	

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	INTERNAL COMMUNICATION Communication among divisions is crucial to ensure that all activities at Denver Water support drought response efforts. Three committees will oversee implementation of the Drought Response Plan: the Drought Response Committee, the Executive Drought Committee, and the Drought Compliance Committee. During periods of drought, members of these committees will incorporate drought management as a crucial part of their jobs. Conditions leading up to and during a drought change rapidly and unpredictably. To respond effectively, all Denver Water employees must receive timely and accurate information. Members of the Drought Ambassadors Program will disseminate drought information to all Denver Water employees. **Drought Response Committee** Drought Response Committee (DRC) members will manage the Drought Response Plan's implementation. They will meet frequently during droughts to coordinate efforts and to identify issues that need to be considered by the Executive Drought Committee. The DRC will select an internal drought coordinator to focus on all issues related to the potential drought and to lead overall drought response efforts. Although other committee members may be added, the core committee should consist of the following staff members from specific Denver Water divisions: **Engineering Division** Coordinator of Recreation **Finance Division** Manager of Rates **Legal Division** General Counsel **Operations and Maintenance Division** Superintendent of Source of Supply Manager of Water Quality **Planning Division** Manager of Water Resources Manager of General Planning Manager of Raw Water Supply **Public Affairs Division** Manager of Water Conservation Manager of Customer Services Manager of Community Affairs Manager of Media Relations Sales Administrator **Human Resources** Manager of Training 46	

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	Executive Drought Committee The Executive Drought Committee consists of Denver Water's manager, senior staff and the internal drought coordinator. **Drought Compliance Committee** Enforcement managers, customer service representatives, and the internal drought coordinator will meet as needed to manage day-to-day implementation of the Drought Response Plan. **Drought Ambassadors Program** Denver Water employees live and work in the community and have daily contact with customers; thus they are all drought ambassadors. This role requires that all employees receive accurate and timely drought information. The Training Department staff, supported by members of the Drought Response Committee, will facilitate the dissemination of drought information to all Denver Water employees. 47	

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	SUMMARY 48	

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	SUMMARY Though predicting exactly when a drought will occur is difficult, Denver Water wants its customers and stakeholders to understand drought conditions and challenges as fully as possible. Denver Water is committed to communicating with its customers about how much water needs to be saved and what specific methods must be used to achieve those savings. Although the Denver Water Board's drought response decisions will be based on specific circumstances during a drought and cannot be known with certainty ahead of time, this plan is intended to help Board members, staff, customers and stakeholders better prepare for eventual droughts. **Watching for Drought** If drier-than-normal conditions exist, public interest in the potential for drought may intensify before Denver Water is able to make a reasonably certain projection of July 1 reservoir storage. The effects of less snowfall, reduced reservoir storage and increased forest fire danger will already have generated a general awareness of the possibility of drought. In addition, other metro-area water suppliers may already have imposed restrictions on their customers. In the early stages of a dry period, Denver Water will communicate that it is closely watching conditions throughout the water system and that it is ready to act when conditions specific to its water system and customers call for action. Even if dry conditions do not eventually lead to declaration of a drought for Denver Water customers, the Public Affairs staff, as well as members of the Board and the Citizens Advisory Committee, need to be prepared with consistent information to field queries from the media, customers and recreation enthusiasts. 49	

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	Fondazione Eni Enrico Mattei **Comparing Price and Non-price Approaches to Urban Water Conservation** Sheila M. Olmstead and Robert N. Stavins NOTA DI LAVORO 66.2008 **SEPTEMBER 2008** NRM – Natural Resources Management Sheila M. Olmstead, *Associate Professor of Environmental Economics* *Yale School of Forestry and Environmental Studies* Robert N. Stavins, *Albert Pratt Professor of Business and Government* *Harvard Kennedy School, Harvard University* This paper can be downloaded without charge at: The Fondazione Eni Enrico Mattei Note di Lavoro Series Index: http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm Social Science Research Network Electronic Paper Collection: http://ssrn.com/abstract=1260139 The opinions expressed in this paper do not necessarily reflect the position of Fondazione Eni Enrico Mattei Corso Magenta, 63, 20123 Milano (I), web site: www.feem.it, e-mail: working.papers@feem.it	

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	Comparing Price and Non-price Approaches to Urban Water Conservation **Summary** Urban water conservation is typically achieved through prescriptive regulations, including the rationing of water for particular uses and requirements for the installation of particular technologies. A significant shift has occurred in pollution control regulations toward market-based policies in recent decades. We offer an analysis of the relative merits of market-based and prescriptive approaches to water conservation, where prices have rarely been used to allocate scarce supplies. The analysis emphasizes the emerging theoretical and empirical evidence that using prices to manage water demand is more cost-effective than implementing non-price conservation programs, similar to results for pollution control in earlier decades. Price-based approaches also have advantages in terms of monitoring and enforcement. In terms of predictability and equity, neither policy instrument has an inherent advantage over the other. As in any policy context, political considerations are important. **Keywords:** Cost-effectiveness, Water Conservation, Market-based Approaches, Policy Instrument Choice, Water Price **JEL Classification:** Q25, Q28, Q58, L95 *The authors are grateful for financial support from the Pioneer Institute for Public Policy 421 Research.* *Address for correspondence:* Sheila M. Olmstead Associate Professor of Environmental Economics Yale School of Forestry and Environmental Studies 205 Prospect Street New Haven CT 06511 Phone: 203 4326247 Fax: 203 4320026 E-mail: sheila.olmstead@yale.edu	

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	Comparing Price and Non-price Approaches to Urban Water Conservation Sheila M. Olmstead and Robert N. Stavins **1. Introduction** Cities, towns, and villages around the world struggle to manage water resources in the face of population increases, consumer demand for water-intensive services, and increasing costs (including environmental costs) of developing new supplies. In this paper, we provide an economic perspective on reducing urban water demand through pricing and non-price conservation policies. We compare price and non-price approaches to water conservation along five dimensions: the ability of policies to achieve water conservation goals, cost-effectiveness, distributional equity, monitoring and enforcement, and political feasibility. The worst drought on record continues to unfold in the American southeast, affecting major cities such as Atlanta, Georgia, and Raleigh, North Carolina. In the arid Western U.S., the Colorado River system faces the worst drought on record, lasting (thus far) from 1999 to 2008 and leaving Lake Mead (the source of more than 90% of Las Vegas's water) about half empty. Municipal water consumption comprises only about 12% of total freshwater withdrawals in the United States; and agricultural irrigation, the single largest water use, comprises just over one-third of all withdrawals (Hutson *et al.* 2004). While analysis suggests that re-allocating water from agriculture to cities would be efficient in many regions, in the current legal and political setting, large-scale transfers of water rights from agriculture to cities are relatively uncommon (Brewer *et al.* 2007, Brown 2006, Howe 1997). Thus, cities often must reduce water consumption during acute shortages due to drought, or in the long run due to constraints on their ability to increase supply. 1	

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	The efficient water price is the long-run marginal cost (LRMC) of its supply. LRMC reflects the full economic cost of water supply – the cost of transmission, treatment and distribution; some portion of the capital cost of reservoirs and treatment systems, both those in existence and those future facilities necessitated by current patterns of use; and the opportunity cost in both use and non-use value of water for other potential purposes. Many analysts have noted that water prices, for many urban as well as agricultural uses, lie well below LRMC (Sibly 2006, Timmins 2003, Hanemann 1997), with significant welfare consequences (Renzetti 1992, Russell and Shin 1996). In the short run, without price increases acting as a signal, water consumption proceeds during periods of scarcity at a faster-than efficient pace. Water conservation takes place only under "moral suasion or direct regulation" (Howe 1997). In contrast, if water prices rose as reservoir levels fell during periods of limited rainfall, consumers would respond by using less water, reducing or eliminating uses according to households' particular preferences. In the long run, inefficient prices alter land-use patterns, industrial location decisions, and other important factors. The sum of all these individual decisions affects the sustainability of local and regional water resources. Implementation of efficient water prices would be challenging, to say the least. Some of the opportunity costs of urban water supply are exceedingly difficult to quantify. What is the value of a gallon of water left instream to support endangered species habitat, for example? While economists have developed a variety of useful methods for estimating such values, the expectation that every water supplier will develop full individual measures of the LRMC of water supply is unrealistic. If LRMC represents an ultimate water pricing goal, there are smaller, less ambitious steps toward efficiency that can be accomplished more readily. 2	

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	Even with inefficient prices, injecting better price signals into the processes of water use and allocation can result in important improvements. For example, given a particular public goal, such as the conservation of a particular quantity of water or percentage of current consumption, various policies can be employed, some more costly than others. Choosing the least costly method of achieving some water-provision goal is characterized in economic terms as cost-effective water management. Even if the water conservation goal is, itself, inefficient, society can benefit from the minimization of costs to achieve it. We focus on this issue of policy instrument choice for water conservation, summarizing research from the economics literature, including both our own work on this issue and that of other economists. Given the strong theoretical cost advantages of market-based approaches to water conservation over conventional alternatives, and the emerging empirical evidence for the potential cost savings from moving to market-based approaches to conservation, the time is ripe for a discussion of the relative strengths and weaknesses of these policy instruments. **2. Cost-effectiveness of water conservation policies** Decades of theoretical and empirical economic analysis suggest that market-based environmental policies are more cost-effective than conventional policies, often characterized as command-and-control (CAC) or prescriptive approaches. Market-based regulations encourage behavior through market signals rather than through explicit directives regarding conservation levels or methods. These policy instruments, if well-designed and implemented, encourage firms and households to undertake conservation efforts that are in their own interests and collectively meet policy goals. CAC approaches, in contrast, allow little flexibility in the means of achieving 3	

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	goals and often require households and/or firms to undertake similar shares of a conservation burden regardless of cost. In the area of pollution control, the cost-effectiveness advantage of market-based approaches over CAC policies has been demonstrated theoretically (Pigou 1920, Crocker 1966, Dales 1968, Montgomery 1972, Baumol and Oates 1988) and empirically (Keohane 2007, Teitenberg 2006). Perhaps the best-known application of these principles to environmental regulation is the U.S. SO_2 trading program, established under Title IV of the Clean Air Act Amendments of 1990, which has produced cost savings on the order of $1 billion annually (Stavins 2003). Dozens of other market-based policies have been applied to air and water pollution control, fisheries management, and other environmental problems in industrialized and developing countries (Kolstad and Freeman 2007, Stavins 2003, Sterner 2003, Panayotou 1998). Economists' attention has only recently turned to examining the potential economic gains from adopting market-based approaches to water conservation, rather than CAC approaches. Whereas the gains from market-based approaches to pollution control depend critically on heterogeneity in marginal abatement costs across firms (Newell and Stavins 2003), the cost savings from market-based approaches to water conservation derive largely from heterogeneity in households' marginal benefits from water consumption (Mansur and Olmstead 2007). This is because current CAC approaches to water conservation are essentially rationing policies. This makes the application similar to other cases in which rationing has been replaced with price-based allocation, such as traffic congestion on roadways (Parry and Bento 2002) and at airports (Pels and Verhof 2004). Recent studies demonstrate how raising prices, rather than implementing non-price policies, can substantially reduce the economic cost of achieving water consumption reductions (Collinge 1994; Krause *et al.* 2003; Brennan *et al.* 2007). 4	

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	In order to illustrate the basic economics, we can examine one typical CAC approach to water conservation – a citywide required demand reduction achieved by uniformly restricting outdoor uses. Figure 1 portrays two households with the same indoor demand curves, but different preferences with respect to outdoor demand. The difference in slopes of the three demand curves is associated with differences in elasticity – the percentage change in demand prompted by a one percent price increase. (For all but one specific class of demand function, price elasticity varies along the demand curve, thus while we can speak broadly about comparisons across demand curves, there may be points on a relatively steep demand curve at which price elasticity exceeds that on some parts of a flat demand curve.) Here we assume that indoor demand (frame C in Figure 1), the steepest curve, is inelastic, because indoor uses are less easily reduced in response to price changes, reflecting the basic needs met by indoor water use. For outdoor demand, there is a relatively elastic household (Panel A), and a somewhat less elastic household (Panel B). The more elastic household is more likely to reduce outdoor demand in response to a price increase – perhaps because it has weaker preferences for outdoor consumption (e.g., in the short run, it would rather allow the lawn to turn brown than pay a higher water bill to keep it green). Unregulated, with price set at $\bar{P}$, both households consume Q_C units of water indoors, the less elastic household consumes Q_B^{unreg} outdoors, and the more elastic household consumes Q_A^{unreg} outdoors. Outdoor reduction mandated under a CAC approach (which leaves indoor use unchanged, and reduces outdoor uses to Q_B^{reg} and Q_A^{reg}) creates a "shadow price" for outdoor consumption (λ) that is higher under the current marginal price ($\bar{P}$) for household B than for household A, because household B is willing to pay more for an additional unit of water than household A. If instead the water supplier charges price P^*, that achieves the same aggregate 5	

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	level of water conservation as the prescriptive approach, consumers would realize all potential gains from substitution within and across households, erasing the shaded deadweight loss (DWL) triangles. Consumption moves to Q_2^* indoors for both types of households, and to Q_A^* and Q_B^* outdoors. The savings from the market-based approach are driven by two factors: (1) the ability of households facing higher prices rather than quantity restrictions to decide which uses to reduce according to their own preferences; and (2) allowing heterogeneous responses to the regulation across households, resulting in substitution of scarce water from those households who value it less, to those who value it more. How large are the losses from non-price demand management approaches when examined empirically? We know of only three cases in which the welfare losses from prescriptive water conservation policies have been estimated. Timmins (2003) compared a mandatory low-flow appliance regulation with a modest water price increase, using aggregate consumption data from 13 groundwater-dependent California cities. Under all but the least realistic of assumptions, he found prices to be more cost-effective than technology standards in reducing groundwater aquifer lift-height in the long run. Another study of 11 urban areas in the United States and Canada compared residential outdoor watering restrictions with drought pricing (Mansur and Olmstead 2007). For the same level of aggregate demand reduction as implied by a two-day-per-week outdoor watering restriction, the establishment of a market-clearing drought price in these cities would result in welfare gains of approximately $81 per household per summer drought. This represents about one-quarter of the average household's total annual water bill in the study. Using a different approach, Brennan *et al.* (2007) constructed a household production model to estimate the welfare cost of urban outdoor water restrictions in Perth, Australia, and 6	

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	arrived at similar conclusions. The household welfare costs of a two-day-per-week sprinkling restriction are just under $100 per household per season, and the costs of a complete outdoor watering ban range from $347-$870 per household per season. Based on both economic theory and empirical estimates, the inescapable conclusion is that using price increases to reduce demand, allowing households, industrial facilities, and other consumers to adjust their end-uses of water is more cost-effective than implementing non-price demand management programs. **3. Predictability in Achieving Water Conservation Goals** ***3.1 Effects of Price on Water Demand*** If policymakers are to use prices to manage demand, the key variable of interest is the price elasticity of water demand. Because an increase in the price of water leads consumers to demand less of it, all else equal, price elasticity is a negative number. (Elasticity figures may also be reported in absolute value, and the negative sign is then implicit. We use the more conventional negative sign in this paper.) An important benchmark in elasticity is –1.0; this figure divides demand curves into the categories of elastic and inelastic. There is a critical distinction between "inelastic demand" and demand which is "unresponsive to price". If demand is truly unresponsive to price, price elasticity is equal to zero, and the demand curve is a vertical line – the same quantity of water will be demanded at any price. This may be true in theory for a subsistence quantity of drinking water, but it has not been observed for water demand more broadly in fifty years of empirical economic analysis. That said, water demand in the residential sector is sensitive to price, but demand is inelastic at current prices. In a meta-analysis of 124 estimates generated between 1963 and 7	

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	1993, accounting for the precision of estimates, Espey *et al.* (1997) obtained an average price elasticity of –0.51, a short-run median estimate of –0.38, and a long-run median estimate of –0.64. Likewise, Dalhuisen *et al.* (2003) obtained a mean price elasticity of -0.41 in a meta-analysis of almost 300 price elasticity studies, 1963-1998. And a recent, comprehensive study of water demand in eleven urban areas in the United States and Canada found that the price elasticity of water demand was approximately –0.33 (Olmstead *et al.* 2007). The price elasticity of residential demand varies substantially across place and time, but on average, in the United States, a 10% increase in the marginal price of water in the urban residential sector can be expected to diminish demand by about three to four percent in the short run. This is similar to empirical estimates of the price elasticity of residential energy demand (Bohi and Zimmerman 1984, Bernstein and Griffin 2005). There are some important caveats worth mentioning. First, elasticities vary along a demand curve, and any estimate represents an elasticity at a specific price, in particular, actual (current) prices. Were prices to approach the efficient levels discussed earlier, water demand would likely be much more sensitive to price increases. Second, consumers are relatively more sensitive to water prices in the long run than they are in the short run, because over longer time periods, capital investments are not fixed. For example, households might change appliance stocks, retrofit water-using fixtures, or alter landscaping from lawns to drought-tolerant plants; firms can be expected to change water-consuming technologies, increase recycling, or relocate to areas in which water is more plentiful. In the long run, a 10% price increase can be expected to decrease demand by about six percent. Third, price elasticities vary with many other factors. In the residential sector, high-income households tend to be much less sensitive to water price increases than low-income 8	

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	households. Also, price elasticity may increase by 30 percent or more when price information is posted on water bills (Gaudin 2006). And price elasticity may be higher under increasing-block prices (in which the marginal volumetric water price increases with consumption) than under uniform volumetric prices (Olmstead *et al.* 2007). Price elasticities must be interpreted in the context in which they have been derived. ***3.2 Effects of Non-price Conservation Programs on Water Demand*** Historically, water suppliers have relied on non-price conservation programs to induce demand reductions during shortages. We consider the effects of such non-price programs in three categories: (1) required or voluntary adoption of water-conserving technologies; (2) mandatory water use restrictions; and (3) mixed non-price conservation programs. *3.2.1 Required or Voluntary Adoption of Water-Conserving Technologies* Many urban water utilities have experimented with required or voluntary adoption of low-flow technologies. (Since the 1992 Energy Policy Act, U.S. law has required the installation of low-flow toilets and showerheads in all new residential construction, but some cities have also mandated or encouraged retrofitting.) When water savings from these programs have been estimated, they have often been smaller than expected, due to behavioral changes that partially offset the benefit of greater technical efficiency. For example, households with low-flow showerheads may take longer showers than they would without these fixtures (Mayer *et al.* 1998). The necessity of the "double flush" was a notorious difficulty with early models of low-flow toilets. In a recent demonstration of similar compensating behavior, randomly-selected households had their top-loading clotheswashers replaced with more water efficient, front-loading washers. In this field trial, the average front-loading household increased clothes- 9	

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	washing by 5.6 percent, perhaps due to the cost savings associated with the appliances' increased efficiency (Davis 2006). Several engineering studies have observed a small number of households in a single region to estimate the water savings associated with low-flow fixtures. But most of these studies used intrusive data collection mechanisms, attaching equipment to faucets and other fixtures in homes (Brown and Caldwell 1984). Study participants were aware they were being monitored as they used water, which may have led to confounding behavioral changes. One comprehensive study that was not characterized by this monitoring problem indicates that households fully constructed or retrofitted with low-flow toilets used about 20 percent less water than households with no low-flow toilets. The equivalent savings reported for low-flow showerheads was 9 percent (Mayer *et al.* 1998). Careful studies of low-flow showerhead retrofit programs in the East Bay Municipal Utility District, California, and Tampa, Florida estimate water savings of 1.7 and 3.6 gallons per capita per day (gpcpd), respectively (Aher *et al.* 1991; Anderson *et al.* 1993). In contrast, showerhead replacement had no statistically significant effect in Boulder, Colorado (Aquacraft 1996). Savings reported for low-flow toilet installation and rebate programs range from 6.1 gpcpd in Tampa, Florida to 10.6 gpcpd in Seattle, Washington (U.S. General Accounting Office 2000). Renwick and Green (2000) estimate no significant effect of ultra low-flush toilet rebates in Santa Barbara, California. It is not surprising that studies of the water savings induced by such policies vary widely, from zero to significant water savings – the scope and nature of policies vary widely, as well. More important than the raw water savings induced by these programs, however, is the cost per gallon saved, in comparison with alternative policies. The costs of toilet retrofit policies implemented in U.S. cities range from less than $100,000 to replace 1,226 toilets in Phoenix, 10	

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	Arizona to $290 million for 1.3 million toilets in New York City (U.S. General Accounting Office 2000). These can be expensive programs, but in most cases no analysis is done to estimate the magnitude of price increases that would have induced demand reductions equivalent to those observed with technology standards. Only with such information can price and non-price demand management programs be compared as policy options on the basis of cost. *3.2.2 Mandatory Water-Use Restrictions* Non-price management tools also include utility implementation of mandatory water use restrictions, much like the traditional command-and-control approach to pollution regulation. These include restrictions on the total quantity of water that can be used, as well as restrictions on particular water uses, usually outdoors, such as lawn-watering and car-washing. Empirical evidence regarding the effects of these programs is mixed. Summer 1996 water consumption restrictions in Corpus Christi, Texas, including prohibitions on landscape irrigation and car-washing, did not prompt statistically significant water savings in the residential sector (Schultz *et al.* 1997). However, a longer-term program in Pasadena, California resulted in aggregate water savings (Kiefer *et al.* 1993), as did a program of mandatory water use restrictions in Santa Barbara, California (Renwick and Green 2000). *3.2.3 Mixed Non-Price Conservation Programs* Water utilities often implement a variety of non-price conservation programs simultaneously, making it difficult to determine the effects of individual policies. One analysis of the effect of conservation programs on aggregate water district consumption in California found small but significant reductions in total water use attributable to landscape education programs and watering restrictions, but no effect due to non-landscape conservation education programs, low-flow fixture distribution, or the presentation of drought and conservation 11	

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	information on customer bills (Corral 1997). Another study of southern California cities found that the number of conservation programs in place in a city had a small negative impact on total residential water demand (Michelsen *et al.* 1998). An aggregate demand study in California found that public information campaigns, retrofit subsidies, water rationing, and water use restrictions had negative and statistically significant impacts on average monthly residential water use, and the more stringent policies had stronger effects than voluntary policies and education programs (Renwick and Green 2000). *3.2.4. Summing up the predictability comparison* Predictability of the effects of a water conservation policy may be of considerable importance to water suppliers, although in most cases the objective of water conservation policies is water savings, without any specific target in mind. In this case, an estimate of the reduction expected from policy implementation is necessary, but precision is less important. If certainty is required, economic theory would suggest that the quantity restrictions typical of traditional, prescriptive approaches to water demand management would be preferred to price increases, particularly if water suppliers could be sure of near-total compliance, or at least be able to adjust their water savings target upward to account for a reliable estimate of the noncompliance rate (Weitzman 1973). But suppliers generally cannot rely on substantial compliance with quantity-based restrictions. In a comprehensive study of drought management policies among 85 urban water utilities during a prolonged drought in Southern California, analysts reported that 40 agencies adopted mandatory quantity restrictions, but also found that more than half of the customers violated the restrictions (Dixon *et al.* 1996). Such non-binding quantity constraints are common, but how are utilities to predict the water savings achievable through quantity restrictions when less than half of consumers typically comply? In the same 12	

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	study, about three-quarters of participating urban water agencies implemented type-of-use restrictions (most of them mandatory). Few penalties were reported, and enforcement was weak, again raising questions regarding compliance. With such low rates of compliance with traditional quantity-based regulations, neither price nor non-price demand management programs have an advantage in terms of predicting water demand reductions. **4. Equity and Distributional Considerations** The main distributional concern with a market-based approach to urban water management arises from the central feature of a market – allocation of a scarce good by willingness to pay (WTP). Under some conditions, WTP may be considered an unjust allocation criterion. Think, for example, about the negative reaction to selling food and water to the highest bidder in the aftermath of a natural disaster. This sense that there are some goods and services that should not be distributed by markets in particular contexts is behind the practice of rationing during wartime. A portion of water in residential consumption is used for basic needs, such as drinking and bathing. "Lifeline" rates and other accommodations ensuring that water bills are not unduly burdensome for low-income households are common. Thus, policymakers considering market-based approaches to water management must be concerned about equity in policy design. What does the empirical evidence tell us about the equity implications of water pricing as a conservation tool? Agthe and Billings (1987) found that low-income households exhibited a larger demand response to price increases in Tucson, Arizona, but the study did not compare the distributional effects of price and non-price approaches. Renwick and Archibald (1998) found that low-income households in two Southern California communities were more price-responsive 13	

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	than high-income households, reflecting water expenditures' larger share of the household budget. Thus, if water demand management occurs solely through price increases, low-income households will contribute a greater fraction of the cities' aggregate water savings than high-income households. This is not surprising to economists – price elasticity tends to decline with the fraction of household income spent on a particular good. Importantly, the distributional implications of non-price policies vary by type. For example, requiring particular landscape irrigation technologies results in demand reduction mainly among higher-income households (Renwick and Archibald 1998). Mansur and Olmstead (2007) examined the distributional impacts of various demand management policies, and found that raising prices to reduce consumption would cause a greater consumption reduction for low-income than for high-income households. (If we return to Figure 1 and assume that households of type A are low-income and type B are high-income, we can see why this happens.) The fact that price-based approaches are regressive in *water consumption* does not mean they are necessarily regressive in *cost*. Likewise, the fact that non-price programs are progressive in water consumption does not mean they are progressive in cost. The impact of non-price programs on distributional equity depends largely on how a non-price program is financed. And progressive price-based approaches to water demand management can be designed by returning utility profits (from higher prices) in the form of rebates. In the case of residential water users, this could occur through the utility billing process. Drought pricing, like LRMC pricing, would cause utilities to earn substantial short-run profits (Mansur and Olmstead 2007). These profits would have to be returned to consumers in some form, as regulated utilities usually are required to earn zero or very low profits. Profits 14	

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	could be re-allocated based upon income, in order to achieve equity goals. Any rebate scheme that is not tied to current consumption can retain the strong economic-incentive benefits of drought pricing, without imposing excessive burdens on low-income households, relative to traditional approaches. **5. Monitoring and Enforcement** Price-based approaches to water demand management hold a substantial advantage over non-price approaches in regard to administrative costs for monitoring and enforcement. Non-price demand management policies require that water suppliers monitor and enforce restrictions on particular fixtures, appliances, and other technologies that customers use indoors and out, the particular days of the week or times of day that customers use water for specific purposes, and in some cases, the quantity used for each purpose. The great difficulty in monitoring and enforcing these types of command-and-control approaches is one reason for the prevalence of outdoor watering restrictions – outdoor uses are usually visible, and it is relatively easy to cruise residential streets searching for violators. Overall, monitoring and enforcement problems explain the low rates of compliance with many non-price demand management programs. Where low-flow fixtures are encouraged or required, they are often replaced with their higher-flow alternatives if consumers are dissatisfied with performance. In contrast, non-compliance in the case of pricing requires that households consume water "off meter," since water consumption is metered and billed volumetrically in most U.S. cities. Of course, higher prices generate incentives not only for conservation, but also for avoidance. However, at prevailing prices and even with substantial price increases, the 15	

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	monitoring and enforcement requirements of price changes are likely to be far less significant than those of a comparable non-price approach. **6. Political Considerations** Water demand management through non-price techniques is the overwhelmingly dominant paradigm in cities around the world. Raising prices, particularly for what people perceive to be a "public service" (though water is supplied by both public and private entities), can be politically difficult. After a two-year drought in the late 1970s, the city of Tucson, Arizona was the first U.S. city to adopt marginal-cost water prices, which involved a substantial price increase. One year later, the entire Tucson city council was voted out of office due to the water rate increase (Hall 2000). Just as few elected officials relish the prospect of raising taxes, few want to increase water rates. Ironically, non-price programs are more expensive to society than water price increases, once the real costs of programs and associated welfare losses are considered. A parallel can be drawn in this case to market-based approaches to environmental pollution control, including taxes and tradable permit systems. Cost-effectiveness has only recently been accepted as an important criterion for the selection of policies to control pollution (Keohane *et al.* 1998). Despite empirical evidence regarding their higher costs, political constituencies that prefer non-price approaches have succeeded in preventing management through prices. Some of this resistance to using prices may be due to misinformation, since most policymakers and water customers are not aware of the cost-effectiveness advantage of the price-based approach. For example, a common misconception in this regard is that price elasticity is "too low to make a difference". 16	

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	Non-price demand management techniques can create political liabilities in the form of water utility budget deficits. Non-price conservation programs are costly. In addition, if these policies actually reduce demand, water utility revenues decline. During prolonged droughts, these combined effects can result in the necessity for substantial price increases following "successful" non-price conservation programs, simply to prevent water utilities from unsustainable financial losses. This occurred in 1991 in southern California. During a prolonged drought, Los Angeles water consumers responded to the Department of Water and Power's request for voluntary water use reductions. Total use and total revenues fell by more than 20 percent. As a result, the Department requested a rate increase to cover its growing losses (Hall 2000). In contrast, given urban price elasticities common in the United States, price increases will increase water suppliers' total revenues. The extra per-unit revenues from a price increase outweighs lost revenue from the decreased demand. The costs of inefficient water pricing and the relative cost advantages of price over non-price water demand management programs are clear. But like other subsidies, low water prices (on a day-to-day basis, as well as during periods of drought) are popular and politically difficult to change. Some communities may be willing to continue to bear excessive costs from inefficient water pricing, in exchange for the political popularity of low prices. In other cases, rate-setting officials may be constrained by law, unable to increase water prices by a percentage that exceeds some statutory maximum. In these cases, the tradeoffs involved should be measured and made explicit to water customers. 17	

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	7. Conclusions Using prices to manage water demand is more cost-effective than implementing non-price conservation programs. The gains from using prices as an incentive for conservation come from allowing households to respond to increased water prices in the manner of their choice, rather than by installing a particular technology or reducing particular uses, as prescribed by non-price approaches. Price-based approaches also have important advantages in terms of monitoring and enforcement. In terms of predictability, neither policy instrument has an inherent advantage over the other. Likewise, neither policy instrument has a natural advantage in terms of equity. Under price-based approaches, low-income households are likely to contribute a greater share of a city's aggregate water consumption reduction than they do under certain types of non-price demand management policies. But progressive price-based approaches to water demand management can be developed by returning some utility profits due to higher prices in the form of consumer rebates. Such rebates will not significantly dampen the effects of price increases on water demand, as long as rebates are not tied to current water consumption. Raising water prices (like the elimination of any subsidy) is politically difficult, but there may be political capital to be earned by elected officials who can demonstrate the cost-effectiveness advantages of the price-based approach. At a minimum, communities choosing politically popular low water prices over cost-effectiveness should quantify this tradeoff and make it explicit. Where water rate-setting officials are constrained by law from raising water prices, during droughts or in general, a discussion of the real costs of these constraints would be useful. 18	

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	We are reminded of the debate, beginning in the late 1980s, over market-based approaches to pollution control. While some opponents of environmental taxes and tradable permit systems still resist these approaches, policymakers have succeeded in implementing them in many cases, achieving impressive pollution reductions at great cost savings over more prescriptive approaches. A similar shift in the area of water conservation, where the principles are essentially the same, is long overdue. 19	

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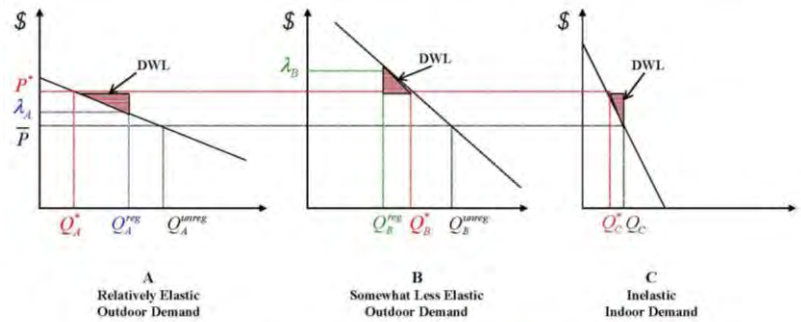
	Figure 1. Welfare Losses from Outdoor Consumption Restrictions with Heterogeneous Outdoor Demand  A Relatively Elastic Outdoor Demand B Somewhat Less Elastic Outdoor Demand C Inelastic Indoor Demand (Where P^* is the market-clearing price for $Q_A^{reg} + Q_B^{reg} + Q_C = Q_A^* + Q_B^* + Q_C^*$).	

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	NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI **Fondazione Eni Enrico Mattei Working Paper Series** **Our Note di Lavoro are available on the Internet at the following addresses:** http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm http://www.ssrn.com/link/feem.html http://www.repec.org http://agecon.lib.umn.edu http://www.bepress.com/feem/ **NOTE DI LAVORO PUBLISHED IN 2008** CCMP 1.2008 *Valentina Bosetti, Carlo Carraro and Emanuele Massetti*: Banking Permits: Economic Efficiency and Distributional Effects CCMP 2.2008 *Ruslana Palatnik and Mordechai Shechter*: Can Climate Change Mitigation Policy Benefit the Israeli Economy? A Computable General Equilibrium Analysis KTHC 3.2008 *Lorenzo Casaburi, Valeria Gattai and G. Alfredo Minerva*: Firms' International Status and Heterogeneity in Performance: Evidence From Italy KTHC 4.2008 *Fabio Sabatini*: Does Social Capital Mitigate Precariousness? SIEV 5.2008 *Wisdom Akpalu*: On the Economics of Rational Self-Medication CCMP 6.2008 *Carlo Carraro and Alessandra Sgobbi*: Climate Change Impacts and Adaptation Strategies In Italy : An Economic Assessment ETA 7.2008 *Elodie Rouvière and Raphaël Soubeyran*: Collective Reputation, Entry and Minimum Quality Standard IEM 8.2008 *Cristina Cattaneo, Matteo Manera and Elisa Scarpa*: Industrial Coal Demand in China: A Provincial Analysis IEM 9.2008 *Massimiliano Serati, Matteo Manera and Michele Plotegher*: Econometric Models for Electricity Prices: A Critical Survey CCMP 10.2008 *Bob van der Zwaan and Reyer Gerlagh*: The Economics of Geological CO_2 Storage and Leakage KTHC 11.2008 *Maria Francesca Cracolici and Teodora Erika Uberti*: Geographical Distribution of Crime in Italian Provinces: A Spatial Econometric Analysis KTHC 12.2008 *Victor Ginsburgh, Shlomo Weber and Sheila Weyers*: Economics of Literary Translation. A Simple Theory and Evidence NRM 13.2008 *Carlo Giupponi, Jaroslav Mysiak and Alessandra Sgobbi*: Participatory Modelling and Decision Support for Natural Resources Management in Climate Change Research NRM 14.2008 *Yaella Depietri and Carlo Giupponi*: Science-Policy Communication for Improved Water Resources Management: Contributions of the Nostrum-DSS Project CCMP 15.2008 *Valentina Bosetti, Alexander Golub, Anil Markandya, Emanuele Massetti and Massimo Tavoni*. Abatement Cost Uncertainty and Policy Instrument Selection under a Stringent Climate Policy. A Dynamic Analysis KTHC 16.2008 *Francesco D'Amuri, Gianmarco I.P. Ottaviano and Giovanni Peri*: The Labor Market Impact of Immigration in Western Germany in the 1990's KTHC 17.2008 *Jean Gabszewicz, Victor Ginsburgh and Shlomo Weber*: Bilingualism and Communicative Benefits CCMP 18.2008 *Benno Torgler, María A.García/Valiñas and Alison Macintyre*: Differences in Preferences Towards the Environment: The Impact of a Gender, Age and Parental Effect PRCG 19.2008 *Gian Luigi Albano and Berardino Cesi*. Past Performance Evaluation in Repeated Procurement: A Simple Model of Handicapping CTN 20.2008 *Pedro Pintassilgo, Michael Finus, Marko Lindroos and Gordon Munro* (lxxxiv): Stability and Success of Regional Fisheries Management Organizations CTN 21.2008 *Hubert Kempf and Leopold von Thadden* (lxxxiv): On Policy Interactions Among Nations: When Do Cooperation and Commitment Matter? CTN 22.2008 *Markus Kinateder* (lxxxiv): Repeated Games Played in a Network CTN 23.2008 *Taiji Furusawa and Hideo Konishi* (lxxxiv): Contributing or Free-Riding? A Theory of Endogenous Lobby Formation CTN 24.2008 *Paolo Pin, Silvio Franz and Matteo Marsili* (lxxxiv): Opportunity and Choice in Social Networks CTN 25.2008 *Vasileios Zikos* (lxxxiv): R&D Collaboration Networks in Mixed Oligopoly CTN 26.2008 *Hans-Peter Weikard and Rob Dellink* (lxxxiv): Sticks and Carrots for the Design of International Climate Agreements with Renegotiations CTN 27.2008 *Jingang Zhao* (lxxxiv) The Maximal Payoff and Coalition Formation in Coalitional Games CTN 28.2008 *Giacomo Pasini, Paolo Pin and Simon Weidenholzer* (lxxxiv): A Network Model of Price Dispersion CTN 29.2008 *Ana Mauleon, Vincent Vannetelbosch and Wouter Vergote* (lxxxiv): Von Neumann-Morgenstern Farsightedly Stable Sets in Two-Sided Matching CTN 30.2008 *Rahmi Ilkiliç* (lxxxiv): Network of Commons CTN 31.2008 *Marco J. van der Leij and I. Sebastian Buhai* (lxxxiv): A Social Network Analysis of Occupational Segregation CTN 32.2008 *Billand Pascal, Frachisse David and Massard Nadine* (lxxxiv): The Sixth Framework Program as an Affiliation Network: Representation and Analysis CTN 33.2008 *Michèle Breton, Lucia Sbragia and Georges Zaccour* (lxxxiv): Dynamic Models for International Environmental Agreements	

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	(lxxxiv) This paper was presented at the 13th Coalition Theory Network Workshop organised by the Fondazione Eni Enrico Mattei (FEEM), held in Venice, Italy on 24-25 January 2008. **2008 SERIES** **CCMP** *Climate Change Modelling and Policy* (Editor: Carlo Carraro) **SIEV** *Sustainability Indicators and Environmental Valuation* (Editor: Anil Markandya) **NRM** *Natural Resources Management* (Editor: Carlo Giupponi) **KTHC** *Knowledge, Technology, Human Capital* (Editor: Giammarco Ottaviano) **IEM** *International Energy Markets* (Editor: Matteo Manera) **CSRM** *Corporate Social Responsibility and Sustainable Management* (Editor: Giulio Sapelli) **PRCG** *Privatisation Regulation Corporate Governance* (Editor: Bernardo Bortolotti) **ETA** *Economic Theory and Applications* (Editor: Carlo Carraro) **CTN** *Coalition Theory Network*	

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	IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLORADO IN THE MATTER OF THE ADJUDICATION OF PRIORITIES OF WATER RIGHTS IN WATER DISTRICT NO. 36 FOR PURPOSES OF IRRIGATION PETITIONERS: THE COLORADO RIVER WATER CONSERVATION DISTRICT, THE GRAND VALLEY WATER USERS ASSOCIATION, ORCHARD MESA IRRIGATION DISTRICT, PALISADE IRRIGATION DISTRICT AND GRAND VALLEY IRRIGATION COMPANY) CONSOLIDATED CASES CIVIL NO. 5016 IN THE MATTER OF THE ADJUDICATION OF PRIORITIES OF WATER RIGHTS IN WATER DISTRICT NO. 36 FOR PURPOSES OTHER THAN IRRIGATION PETITIONERS: THE COLORADO RIVER WATER CONSERVATION DISTRICT, THE GRAND VALLEY WATER USERS ASSOCIATION, ORCHARD MESA IRRIGATION DISTRICT, PALISADE IRRIGATION DISTRICT AND GRAND VALLEY IRRIGATION COMPANY CIVIL NO. 5017 FINDINGS OF FACT AND CONCLUSIONS OF LAW This matter having come on for trial, the United States of America acting by and through J. Lee Rankin, Assistant Attorney General, William H. Veeder, Special Assistant to the Attorney General, and H. Lawrence Hinkley, Assistant United States Attorney; the City and County of Denver acting by and through its attorneys Glenn G. Saunders, John P. Akolt, John C. Banks, Harold D. Roberts, John M. Dickson, Robert A. Dick, Peter H. Holme, Jr., and Allen Dines; the City of Colorado Springs acting by and through its attorneys Frederick T. Henry and William S. Jackson; the City of Englewood acting by and through its attorneys M. O. Shivers, Jr., Frederic L. Kirgis, and Omer L. Griffin, the Northern Colorado Water Conservancy District acting by and through William R. Kelly and John R. Clayton; the Colorado River Water Conservation District acting by and through Frank Delaney and John B. Barnard; the Grand Valley Water Users Association, Grand Valley Irrigation Company, Orchard Mesa Irrigation District and Palisade Irrigation District acting by and through Silmon Smith; evidence having been adduced and stipulations entered into among the several parties, this Court hereby enter the following:	

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	FINDINGS OF FACT AND CONCLUSIONS OF LAW HISTORY OF LITIGATION 1. The case of the United States of America v. Northern Colorado Water Conservancy District, et al., was initiated in this court on June 10, 1949. Involved in this action are the respective rights to the use of water in the Colorado River and its tributaries and the Blue River and its tributaries of the United States of America, Northern Colorado Water Conservancy District, the Colorado River Water Conservation District, the Palisade Irrigation District, the City and County of Denver, the City of Englewood, the City of Colorado Springs. Originally named in the cause were the Public Service Company of Colorado and the South Platte Water Users Association. The Public Service Company of Colorado has been dismissed without prejudice. Also involved are the rights to the use of water of the City and County of Denver from and in the South Platte, Fraser and Williams Fork Rivers and their respective tributaries. 2. The United States of America in initiating Civil Action No. 2782 sought to have its rights to the use of water in the Colorado River and its tributaries quieted against the adverse claims of the City and County of Denver, the City of Colorado Springs, the South Platte Water Users Association, and the Moffat Tunnel Water and Development Company, predecessor in interest of the City of Englewood. It likewise sought to have declared in regard to the other parties defendant the validity of Senate Document No. 80, 75th Congress, 1st Session, and to have construed certain features of that document. 3. At the time of the initiation of this cause there was pending in Water District No. 36, Summit County, Colorado, Proceedings No. 1805 and 1806. Decrees were entered -2-	

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	in those proceedings awarding to the City and County of Denver a priority date of June 24, 1946, and to the City of Colorado Springs a priority date of May 13, 1948. Both the City and County of Denver and the City of Colorado Springs sued out writs of error. They sought to join the United States of America as a defendant in error in the above-mentioned proceedings before the Supreme Court of the State of Colorado in Cases No. 16881 and 16888 before the Court. 4. The United States of America moved to dismiss the writs of error in which the City and County of Denver and the City of Colorado Springs sought to join the United States. On March 5, 1953, the Supreme Court of the State of Colorado granted the motion of the United States of America, dismissing it from said cases and entered an order declaring that the writs of error "heretofore issued in said causes, and each of them, be, and they are, dismissed as to the defendant in error, The United States of America, otherwise to remain in full force and effect until the further order of the Court." 5. On October 18, 1954, the Supreme Court of the State of Colorado rendered its decision in the Proceedings No. 16881 and 16888, City and County of Denver v. Northern Colorado Water Conservancy District, et al. (276 Pacific 2d 992, 1954.) The Supreme Court of Colorado on December 13, 1954, denied Denver's motion for a rehearing and on January 14, 1955 denied its supplemental motion and petition for rehearing. 6. Although the priorities decreed by the District Court in Civil Actions No. 1805 and 1806 from which the City and County of Denver and the City of Colorado Springs appealed were affirmed, the Supreme Court of the State of Colorado nevertheless remanded the cause in accordance with the -3-	

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	following declaration: "Where the interests of beneficiaries are not represented or protected by their trustees, the beneficiaries become proper and necessary parties, with the right to appear and present their case. This they did here and properly so, through the Colorado River Water Conservation District; then, when this was denied, promptly again through their local districts and association. Having appeared to the full extent of their ability, upon default of their trustee they were entitled to be heard. "Accordingly, the decree of the trial court herein is affirmed, except as to its denial of any decree to the Green Mountain Reservoir and powerplant wherein its action is reversed and the case is remanded with instructions to the trial court to reopen the case as to the adjudication of said Green Mountain Reservoir and hydroelectric plant rights with permission to file claim as may be advised in that behalf, and, upon the evidence already introduced, and additional evidence, if any, which may be tendered, to adjudicate said rights." 7. The petitioners named in the caption hereof acting upon the remand of the Supreme Court of the State of Colorado petitioned the District Court in and for Summit County, Colorado, Civil Actions No. 1805 and 1806 for the issuance of alias notice and summons directed to the United States of America. That petition was granted and there was accordingly entered an appropriate order. Pursuant to the order of the District Court in and for Summit County, Colorado, there was served upon the Attorney-General of the United States of America on April 27, 1955, an alias notice and -4-	

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	summons in Civil Actions No. 1805 and 1806. That service was pursuant to 43 U. S. C. 666. A like petition was also filed in the said proceedings by the Northern Colorado Water Conservancy District. 8. On May 6, 1955, Civil Actions No. 1805 and 1806 were removed from the District Court of Summit County, Colorado, to this Court by the United States of America. 9. By its order of June 13, 1955, this Court denied the motions to remand of the City and County of Denver and the City of Colorado Springs. That order of June 13, 1955 denying the motions to remand specifically limited the issues in those removed cases to be in accordance with the mandate of the Supreme Court of the State of Colorado entered October 18, 1954 (276 Pacific 2d 992). An order on pretrial was duly entered in Civil Action No. 2782 and the removed cases designated in this court as 5016 and 5017, and an Order of Consolidation for trial was likewise duly entered. By that order it was specifically provided that the consolidation would be for purposes of trial and the taking of evidence but that any party could request this Court to enter separate findings of fact, conclusions of law and judgment. The consolidated cases were duly set for trial on October 5, 1955. THE COLORADO-BIG THOMPSON PROJECT 10. The Colorado-Big Thompson Project was sponsored by the Northern Colorado Water Users Association and its successor in interest, the Northern Colorado Water Conservancy District. Construction of that project was undertaken by the -5-	

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	United States of America pursuant to the Reclamation Act of June 17, 1902, 32 Stat. 388, 43 U. S. C. 391. Its construction was authorized by the Department of Interior Appropriation Act of August 9, 1937 (50 Stat. 595), which provided for the construction of the project in accordance with Senate Document No. 80, 75th Congress. On September 21, 1937, the President of the United States approved the finding of feasibility in accordance with the Reclamation Law. 11. The Colorado-Big Thompson Project as constructed and now in operation has as its objective, among others, the means for providing a supplemental supply of water for the irrigation of approximately 615,000 acres of irrigated land in the Counties of Larimer, Weld, Morgan, Washington, Logan, Boulder and Sedgwick, State of Colorado. These lands are all situated in the area generally known as the Eastern Slope of the Continental Divide within the State of Colorado and within the Drainage area of the South Platte River. The service area of the defendant, the Northern Colorado Water Conservancy District, a quasi-municipal corporation organized and existing pursuant to the laws of the State of Colorado, embraces approximately 800,000 acres. 12. The principal source of water delivered by the Colorado-Big Thompson Project to the lands within the Northern Colorado Water Conservancy District is the Colorado River. It is delivered to that agency by the United States of America by means of structures hereafter described and pursuant to contracts between the Northern Colorado Water Conservancy District and the United States of America. -6-	

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	GENERAL PHYSICAL DESCRIPTION The Colorado-Big Thompson Project, despite its magnitude, the multiple purposes for which it has been constructed, the extensive system of dams, reservoirs, diversion works, tunnels, canals, conduits, basins, pumping plants, hydroelectric plants, and other structures for impounding, diverting or using water, is nevertheless an entire, interconnected, single, closely integrated project which must be administered in accordance with Senate Document No. 80, 75th Congress, 1st Session, and in accordance with the Stipulation, as amended, hereinafter set forth. The Colorado-Big Thompson Project requires the highest degree of correlation of its widely separated components. All references herein to Senate Document No. 80 pertain only to the matter set forth under the heading of "Manner of Operation of Project Facilities and Auxiliary Features", as set forth in that document. The objectives of the Colorado-Big Thompson Project and its method of operation, the places and purposes of use of the rights to the use of water of the United States of America are specified in Senate Document No. 80, 75th Congress, 1st Session. 1. Green Mountain Reservoir is located approximately sixteen miles southeast of the town of Kremmling, in Summit County, Colorado, and more particularly in all or parts of Sections 11, 12, 13, 14, 15 and 24 T. 2 S., R. 80 W., and Sections 17, 18, 19, 20, 21, 28, 29, 33 and 34, T. 2 S., R. 79 W., 6th Principal Meridian. This reservoir provides storage of water and the utilization of it in accordance with Senate Document No. 80. The reservoir is formed by the construction of Green Mountain Dam across the Blue River, an earth and rock-fill dam having an impervious earth core with rock stabilizing sections on the upstream and downstream faces. -7-	

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	The normal high water surface elevation is 7950.0. The spillway discharge capacity of 25,000 cubic feet per second is controlled by three radial gates that are each twenty-five feet long and twenty-two feet high. Green Mountain Dam is described as follows: Station 0 / 00 on the dam axis bears S. 36° 31' 45" W. a distance of 11,165 feet from the Southwest corner of Section 1, T. 2 S., R. 80 W., 6th Principal Meridian; thence the axis bears N. 21° 00' 00" E. The dam is 309 feet in height from the lowest point of excavation, with the crest at elevation 7960.0. The crest width is 40 feet. The crest length is 1284 feet, including spillway gate structure. The total storage capacity of the Green Mountain Reservoir is 154,645 acre-feet, including 7,757 acre-feet dead storage. The sources of water supply for storage in Green Mountain Reservoir are the Blue River and all tributaries of the Blue River upstream from the dam, and Elliott Creek by means of its diversion canal. All of the direct flow of the Blue River and of Elliott Creek and the waters impounded in Green Mountain Reservoir pass through a conduit leading to the Green Mountain Powerplant. After passing through this hydro-electric powerplant, the water is returned to the Blue River. Elliott Creek Feeder Canal has its beginning in a diversion works across Elliott Creek and more particularly at the intersection of the canal centerline with the head-gate structure of the diversion works, which point is Elliott Creek Feeder Canal Station 3/91.8; and which point. -8-	

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	bears N. 23° 26' E. a distance 2,545.1 feet from the Southwest corner of Section 15, T. 2 S., R. 80 W., 6th Principal Meridian. The canal has various sections, as necessary, with a capacity of 90 cubic feet per second, and extends from its point of beginning in an easterly direction 1.1 miles where it empties into Green Mountain Reservoir by means of a concrete chute that ends at Station 59/45.0 and which point bears S. 10° 23' 14" W. a distance of 3,149.7 feet from the Northwest corner of Section 14, T. 2 S., R. 80 W., 6th Principal Meridian. The Green Mountain Powerplant is located adjacent to the downstream toe of the Green Mountain Dam and also adjacent to the Blue River channel, in Section 15, T. 2 S., R. 80 W., 6th Principal Meridian. The conduit to the powerplant is fed through a 13'-6" diameter vertical shaft, an 18' 0" diameter reinforced concrete tunnel and a twin-barrel steel penstock in a 15'-9" x 23'-3" horseshoe-shaped tunnel. The vertical shaft drops 96.15 feet from the intake trashrack structure to the circular tunnel. The length of the circular tunnel is 569 feet. The slope of this tunnel is 5 feet per 1,000 feet of length. The penstocks are each approximately 906 feet long and 102 inches in diameter. The combined discharge capacity of the outlet works and powerplant is 2,000 cubic feet per second. The maximum amount of water claimed for development of hydroelectric energy through the powerplant is 1,726 cubic feet per second. 2. Improvement to the Colorado River and affected tributaries between Granby Dam and the confluence of the Blue and Colorado Rivers will protect the rights of the -9-	

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	land owners in the vicinity of Kremmling as provided by Senate Document No. 80, page 4, par. (j) et seq. 3. Lake Granby, located in Grand County, Colorado, is formed by Granby Dam across the Colorado River and four dikes in the immediate vicinity of this dam across four saddles or depressions in the earth's surface below the normal high water surface, elevation 8280.00 feet in the reservoir. The reservoir is located in all or parts of Sections 25, 26, 27, 34, 35 and 36, T. 3 N., R. 76 W.; Sections 29, 30 and 32, T. 3 N., R. 75 W.; Sections 1, 2, 3, 10, 11, 12, 13 and 15 T. 2 N., R. 76 W. and Sections 5, 6, 7, 8, 9, 14, 15, 16, 17, 18, 21, 22 and 23, T. 2 N., R. 75 W. The Granby Dam, across the bed of the Colorado River is located in Sections 11 and 12, T. 2 N., R. 76 W. Granby Dam is described as follows: Station 11 + 00 of the dam axis bears N. 9° 37' W. a distance of 2,635.3 feet from the Southeast corner of Section 11, T. 2 N., R. 76 W., 6th Principal Meridian. The bearing of the axis of the dam is N. 49° 30' W. The maximum height of the dam is 298 feet above the lowest point in the foundation excavation. The length of the crest is 923 feet including the spillway gate structure. The structure is an earth and rock-fill dam with an impervious earth core in the center and rock fill or riprap on the outside faces. The crest width is 40 feet. Dikes Nos. 1, 2 and 4 are interconnected and are located in Sections 10, 11, and 15, T. 2 N., R. 76 W. southwest of Granby Dam. Dike No. 3 is described as follows: Station 20+00, of the dike axis bears S. 63° 17' 15" E. a distance of 1,996.6 feet from the Northwest corner of Section 13, T. 2 N., -10-	

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	R. 76 W., 6th Principal Meridian. The sources of supply for Lake Granby are the Colorado River and its tributaries above the location of Granby Dam, and the Willow Creek Diversion, which diversions are hereinafter described. The total storage capacity of Lake Granby is 543,758 acre-feet, including 74,190 acre-feet of dead storage. The water impounded in Lake Granby is pumped to Shadow Mountain Lake and thence via Grand Lake and the Alva B. Adams Tunnel, transported to the Eastern Slope. 4. The Western Slope Feeder Canals are a system of collection ditches diverting water from the tributaries of the Colorado River into Lake Granby which collection ditches are described as follows: Willow Creek Reservoir is located approximately four miles north of Granby, in Grand County, Colorado, and more particularly in all or parts of Section 7, T. 2 N., R. 76 W., and Sections 1, 2, 11 and 12 T. 2 N., R. 77 W., 6th Principal Meridian. The reservoir stores water from Willow Creek and its tributaries upstream therefrom. The reservoir is formed by the construction of Willow Creek Dam across Willow Creek. It is an earth and rock-fill dam having an impervious earth core with rock stabilizing sections on the upstream and downstream faces. The maximum normal operating water surface elevation is 8130, with a flood water surface elevation of 8132. The uncontrolled spillway with crest at 8130 discharges at the rate of 3,200 -11-	

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	cubic feet per second, when the water in the reservoir is at elevation 8132. Willow Creek Dam is described as follows: Station 10/67.2 on the dam axis = Station 14/50.54 in the centerline of the diversion outlet works on the dam axis bears N. 18° 15' 41" W. a distance of 2,307.9 feet from the Southeast corner of Section 7, T. 2 N., R. 76 W., 6th Principal Meridian; thence from said station the axis bears N. 20° 42' E. a distance of 222.8 feet to a point of beginning of the dam axis, thence S. 20° 42' W. a distance of 388.9 feet to P. T. Station 9/01.1; thence on a curve to the right with a radius of 150.0 feet for an arc distance of 106.9 feet to P. C. Station 7/94.2; thence S. 61° 32' W. 604.2 feet, more or less. The dam is approximately 127 feet in height from the lowest point of excavation with the crest at elevation 8140. The crest width is 30 feet. The crest length is approximately 1,100 feet. The total storage capacity of Willow Creek Reservoir is 10,553 acre-feet. Willow Creek Feeder Canal has its beginning in Willow Creek Reservoir and more particularly at the intersection of Willow Creek Dam axis and the centerline of the diversion outlet works, which point is dam axis Station 10/67.2 and the diversion outlet works Station 14/50.54 and which point bears N. 18° 15' 41" W. 2,307.9 feet from the Southeast corner of Section 7, T. 2 N., R. 76 W., 6th Principal Meridian. The canal has various sections, as necessary, with a capacity of 400 cubic feet per second, and extends from its point of beginning in an easterly direction 2.0 miles to Station 120/95. 2 on the axis of the Willow Creek Forebay -12-	

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	Dam; thence the flow of water continues easterly through the Forebay 0.3 miles to the Willow Creek Pumping Plant, at which point a pumping plant with a capacity of 400 cubic feet per second is constructed to raise the water approximately 168 feet to a canal which continues easterly from the pumping plant 1.2 miles to Station 204/70.4 in the west abutment on the axis of Granby Dike No. 4; thence the canal continues in an easterly direction 0.1 of a mile and empties into Lake Granby by means of a concrete chute that ends at Station 211/30.0, and which point bears S.41° 34' 17" E. 5,965.2 feet from the Northwest corner Section 10, T. 2 N., R. 76 W., 6th Principal Meridian. All intercepted flows from named and unnamed creeks enroute to Lake Granby are also diverted into Lake Granby. 5. Granby Pumping Plant and Pump Canal The Granby Pumping Plant is located on the north shore of Lake Granby about seven and one-half miles northeast of Granby, Colorado in Section 35, T. 3 N., R. 76 W., 6th Principal Meridian. The building is of reinforced concrete design, 59'00" x 125' 00", and 188.5' from the submerged foundation to the top of the parapet. The Pumping Plant consists of three 6,000 horsepower electric motors which will drive three centrifugal pumps, each of which has a capacity of 200 cubic feet per second at a pumping head of 185 feet. The Granby Pumping Plant intake channel has its point of beginning inside Granby Reservoir at Station 13/00 of the Granby Pump Canal line, which point bears S. 73° 51' 59" W. a distance of 7,632.1 feet from the Northeast corner of Section 36, T. 3 N., R. 76 W.; thence the channel extends in a northerly direction 0.3 of a mile to the Granby Pumping Plant; thence the water is pumped by Granby Pumping Plant into the Granby Pumping Plant discharge conduit, -13-	

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	which has a capacity of 1,100 cubic feet per second, and which discharge conduit extends in a northerly direction for 0.7 of a mile to Station 64/55.0 BK. = 66/88.0 AH; at which point the water is released into the Granby Pump Canal. Granby Pump Canal has its point of beginning at the end of the Granby Pumping Plant discharge conduit, which point is Station 64/55.0 BK = Station 66/88.0 AH; thence the unlined canal, with a capacity of 1,100 cubic feet per second, extends in a northerly direction for 1.8 miles to canal Station 161/31.3 = Station 29/63.7 of Shadow Mountain Dam and Dikes, which point bears N. 22° 20' 31" W. a distance of 3,277.0 feet from the Southeast corner of Section 24, T. 3 N., R. 76 W., and at which point the water flows into Shadow Mountain Lake. 6. Shadow Mountain Lake is in effect an extension of Grand Lake and acts as a conduit to the inlet of the Alva B. Adams Tunnel for water pumped from Lake Granby as well as water intercepted from tributaries of the Colorado River by Shadow Mountain Lake and Grand Lake. The two mentioned lakes also serve as a storage and regulating reservoir with the water surface normally maintained between elevations 8366 and 8367 which will provide a combined active capacity of 1,839 acre-feet. Shadow Mountain Lake is located upon all or portions of Sections 6, 7, 18 and 19, T. 3 N., R. 75 W., 6th Principal Meridian and Sections 12, 13 and 24, T. 3 N., R. 76 W., 6th Principal Meridian. Shadow Mountain Dam is described as follows: Station 0/00 on the Shadow Mountain Dam axis extended bears N. 18° 55' E. a distance of 3,882.1 feet from the Southwest corner of Section 19, T. 3 N., R. 75 W., 6th Principal	

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	Meridian. The maximum operating water surface elevation is 8367.0. The spillway capacity of 8,000 cubic feet per second is controlled by two radial gates each 18.0 feet long and 18.5 feet high. The dam is 63 feet in height from the lowest point of excavation, with the crest at elevation 8375. The crest length, including the dikes and the spillway section, is 3,077 feet. The crest width is 30 feet. The sources of water supply for Shadow Mountain Lake are the direct flows of the Colorado River and its tributaries upstream from Shadow Mountain Dam and the water pumped from Granby Reservoir heretofore described. The total storage capacity of Shadow Mountain Lake and usable storage of Grand Lake is 18,369 acre-feet. The water impounded in Shadow Mountain Lake and Grand Lake flows through the Alva B. Adams Tunnel to the Eastern Slope or is released through the spillway radial gates into the Colorado River, and thence into Granby Reservoir and related works. 7. The Alva B. Adams Tunnel (Continental Divide Tunnel) extends from the east shore of Grand Lake, under the Continental Divide a distance of 13.1 miles in a northeasterly direction, to Wind River, a tributary of the Big Thompson River, which is a tributary of the South Platte River. Said tunnel has a diameter of nine feet nine inches, with a capacity of 550 cubic feet per second. The supply of water for said tunnel is obtained by means of the dams and collecting systems, ditches, and tributaries of the Colorado River, which combine to deliver water to the west or inlet portal of said Tunnel. The inlet conduit of the said Tunnel extends from -15-	

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	Station 5/95 (West Portal) of the Alva B. Adams Tunnel in a southwesterly direction into Grand Lake. From Station 5/95, which station bears S. 74° 31' W., a distance of 1262.2 feet from the North quarter-corner of Section 9, T. 3 N., R. 73 W., 6th Principal Meridian, to Station 3/92.50, the inlet is a reinforced concrete, earth covered conduit with an outside width of 20'-6", and has two rectangular passages each 9 feet wide and 10'-6" high. From Station 3/92.50 the inlet structure fans out to an arc width of 300 feet at Station 2/39.00 which arc is the point of entrance of water from Grand Lake. The flow of water through the inlet into the Alva B. Adams Tunnel is controlled by two steel radial gates located in a gate structure at Station 5/88. The said Alva B. Adams Tunnel is concrete lined, with a diameter of nine feet nine inches, throughout its entire length of 69,029.94 feet (13.1 miles) with a slope of 1.55 feet per 1,000 feet of length. Station 700/59.00 is the outlet or eastern portal of said Tunnel and said station bears S. 11° 13' 25" E., a distance of 1,967.7 feet from the Northwest corner of Section 9, T. 4 N., R. 73 W., 6th Principal Meridian. The Tunnel discharges water into the East Portal Reservoir. 8. The Estes Park Aqueduct and Power System transports Colorado River water from the outlet of the Alva B. Adams Tunnel into Lake Estes, formed by Olympus Dam across the Big Thompson River. The system develops hydroelectric power enroute through conduits more specifically described as follows: The East Portal Reservoir is located approximately five miles in a southwesterly direction, from the town of -16-	

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	Estes Park, in Larimer County, Colorado and more particularly in part of Section 9, T. 4 N., R. 73 W., 6th Principal Meridian. The reservoir is formed by the construction of a rock-fill dam, having a concrete corewall, across Wind River. The dam is 82 feet in height from the lowest point of excavation; crest length is 245 feet including the spillway and outlet works; crest width is 30 feet; the capacity of East Portal Reservoir is 20 acre-feet. Aspen Creek Siphon has its beginning at the right end of the East Portal Dam. It extends from the East Portal Reservoir to a 70.6 foot flume section located immediately west of the west portal of Rams Horn Tunnel. The said siphon has a reinforced concrete barrel ten feet nine inches diameter with a capacity of 550 cubic feet per second. Rams Horn Tunnel extends from the above-described flume at the east end of the Aspen Creek Siphon to the head-works of the Marys Lake Penstock, a distance of approximately 1.3 miles and has a carrying capacity of 550 cubic feet per second. Marys Lake Penstock has its beginning at Station 845/80, located 96 feet from the outlet portal of Rams Horn Tunnel. The penstock is ninety-six inches in diameter and is designed to operate under a maximum head of 201.5 feet, with a capacity of 550 cubic feet per second. It enters the Marys Lake Powerplant at Station 850/46. A fixed wheel gate controls the flow into the penstock. Marys Lake Powerplant is located on the southwest side of Marys Lake Reservoir at Station 850/80. The powerplant is a reinforced concrete building and houses one main generating unit and station-service equipment. The main generating -17-	

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	unit is an 8,100 kilowatt vertical shaft generator directly connected to an 11,300 horsepower hydraulic turbine. Water passing through the powerplant discharges directly into Marys Lake Reservoir. Marys Lake Reservoir is located approximately two miles, in a southerly direction, from the town of Estes Park, in Larimer County, Colorado. The reservoir is formed by the construction of dikes along the east shore and south shore of the existing Marys Lake basin. The storage capacity of Marys Lake Reservoir is 952 acre-feet. Prospect Mountain Conduit extends from Marys Lake Reservoir to the Prospect Mountain Tunnel. The conduit is twelve feet six inches in diameter and has a capacity of 1,300 cubic feet per second. Prospect Mountain Tunnel is twelve feet six inches in diameter, with a reinforced concrete lining. It has a capacity of 1,300 cubic feet per second. Estes Penstocks begin at the outlet portal of Prospect Mountain Tunnel and lead to the Estes Powerplant. Estes Powerplant is located on the south bank of the Big Thompson River about one-half mile east of Estes Park, Larimer County, Colorado. It consists of three 15,000 kilowatt electric generators and three 21,000 horsepower hydraulic turbines fed by the three above-described penstocks. The total installed rated capacity of the powerplant is 45,000 kilowatts. Water passing through the Estes Powerplant is discharged directly into Lake Estes. Lake Estes is located about one and one-half miles east of the town of Estes Park, in Larimer County, Colorado. It is the diversion works for the Estes-Foothills Aqueduct -18-	

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	and Power System, and controls the flow of water into the Big Thompson River, by means of a spillway. The lake is formed by the construction of Olympus Dam across the Big Thompson River. The dam is 60 feet in height from the lowest point of excavation with the crest at elevation 7481. The crest width is 30 feet. The crest length is 1,860 feet (including the diversion headworks). The total storage capacity of Lake Estes is 3,368 acre-feet. 9. The Estes-Foothills Aqueduct and Power System conveys water diverted from the Colorado River, excess waters of the Big Thompson River, and Big Thompson River water to be used for power from Lake Estes to the Flatiron Reservoir. Big Thompson River water used only for power is returned to the Big Thompson River at the Big Thompson wasteway. The system is more specifically described, starting at the headworks and continuing in an easterly direction, or the direction of flow, to the discharge into Flatiron Reservoir, as follows: Olympus Siphon is a closed conduit section, 0.8 of a mile in length extending in an easterly direction. The conduit is designed for a capacity of 550 cubic feet per second and delivers water to the intake portal of Olympus Tunnel. Olympus and Pole Hill Tunnels are continuous except for a short section of closed conduit at the common point and extend in an easterly direction for a distance of 7.2 miles, beginning at Station 88/80 which bears S. 23° 53' 22" E., a distance of 2,041.4 feet from the Northwest corner of Section 28, T. 5 N., R. 72 W., 6th Principal Meridian. The common point of the tunnels bears S. 45° 24' 05" W. a distance of 705.0 feet from the Northeast corner of Section 27, T. 5 N., R. 72 W. The tunnels are horseshoe shaped, nine feet nine inches in diameter, -19-	

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	with a capacity of 550 cubic feet per second, and convey water to Pole Hill Canal. Pole Hill Canal, 0.5 of a mile in length with a capacity of 550 cubic feet per second, has its beginning at the outlet portal of Pole Hill tunnel. The canal delivers water to the headgate structure of Pole Hill Powerplant Penstock. Pole Hill Penstock is a steel pipe having a diameter of ninety-six inches, is 0.35 of a mile in length, and leads in an easterly direction to its terminal in the Pole Hill Powerplant. Pole Hill Powerplant is located in the canyon of Little Hell Creek at Station 517/18 on the centerline of the above-described penstock extended, which point bears N. 39° 02' 34" E., a distance of 636.6 feet from the Southwest corner of Section 26, T. 5 N., R. 71 W., 6th Principal Meridian. The powerplant is an insulated metal panel building 70 feet wide by 85 feet long and houses one main generating unit. The generating unit is a 33,250 kilowatt vertical shaft generator directly connected to a 47,500 horsepower turbine. Water passing through the power plant discharges into a very small afterbay and thence into Rattlesnake Tunnel. Rattlesnake Tunnel, which is 1.7 miles in length, has a capacity of 550 cubic feet per second, is horseshoe-shaped and has a diameter of nine feet nine inches. The tunnel delivers water from the afterbay of Pole Hill Powerplant to Rattlesnake Reservoir. The tunnel has its beginning at Station 9/15, which point bears N. 70° 40' 56" E., a distance of 1,000.32 feet from the Southwest corner of Section 26, T. 5 N., R. 71 W., 6th Principal Meridian and passes through the mountains in an easterly direction to Station 96/78 -20-	

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	which bears N. 35° 40' 32" W., a distance of 1,424.1 feet from the Southwest corner of Section 25, T. 5 N., R. 71 W., 6th Principal Meridian, at which point the water is delivered into Rattlesnake Reservoir. Rattlesnake Reservoir is located in Larimer County, Colorado, and more particularly in parts of Section 25, T. 5 N., R. 71 W.; and in Sections 30 and 31, T. 5 N., R. 70 W., 6th Principal Meridian. This reservoir acts as pondage for, and re-regulation of, water between the Pole Hill and Flatiron Powerplants. The reservoir is formed by the construction of Rattlesnake Dam across the lower valley of Rattlesnake Park. It is an earth and rock-fill dam having an impervious earth core with rock stabilizing sections on both the upstream and downstream faces. The total storage capacity of Rattlesnake Reservoir is 2,381 acre-feet. Bald Mountain Tunnel is a circular lined tunnel ten feet six inches in diameter that extends through the mountains in an easterly direction for a distance of about 1.3 miles. The capacity of this tunnel is 960 cubic feet per second. It delivers water to the penstock gate structure at the beginning of Flatiron Penstocks. Flatiron Penstocks begin in the penstock gate house which is at Station 88 + 00 which point bears S. 37° 44' 15" W., a distance of 1917.5 feet from the Northeast Corner of Section 32, T. 5N., R. 70 W., 6th Principal Meridian. Two steel penstocks approximately 1.11 miles in length deliver water to the Flatiron powerplant. Flatiron Powerplant is located in Chimney Hollow Valley. The plant consists of two 46,000 horsepower turbines directly connected to two 31,500 kilowatt electric generators and a combination pump-turbine. Flatiron Reservoir is located in Larimer County, -21-	

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	Colorado, and more particularly in parts of Sections 27 and 28, T. 5 N., R. 70 W., 6th Principal Meridian. Flatiron Dam is approximately 86 feet in height from the lowest point of excavation with the crest at elevation 5486. The crest width is 30 feet. The crest length is approximately 1,725 feet, including the spillway section. The total storage capacity of Flatiron Reservoir is 830 acre-feet. Big Thompson Powerplant will be located approximately seven and one-half miles west of the town of Loveland, Larimer County, Colorado and near the intersection of the Horsetooth Feeder Canal and the Big Thompson River. The powerplant will have a generating capacity of 4500 kilowatts. Water which passes through the turbines will be discharged into the Big Thompson River. 10. The Foothills Reservoirs and Feeder Canals transport Eastern and Western Slope diverted water from the Estes-Foothills Aqueduct and Power System to the Eastern Slope storage reservoirs for storage and release to irrigators as required or for restoration of diversional fluctuations in the Big Thompson River and to return like flows as will be withdrawn for power development purposes at Lake Estes. From Flatiron Reservoir, water may be either discharged by gravity into the Horsetooth Feeder Canal or be pumped to Carter Lake. Water may be transported into or out of Carter Lake through the same pumping plant discharge tube and pressure tunnel hereinafter discussed. The Flatiron Pumping Plant is located approximately 9 miles northwesterly from the town of Berthoud, in Larimer County, Colorado, in Section 28, T. 5 N., R. 70 W., 6th Principal Meridian. The one motor-generator in the Pumping Plant has a capacity of 370 cubic feet per second at a pumping head of 240 feet. When operated as a generator, using water from Carter Lake, the unit has a capacity of 8500 kilowatts. -22-	

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	Flatiron Pumping Plant takes water from Flatiron Reservoir and pumps it through a discharge pipe and pressure tunnel which has a diameter of eight feet and a maximum capacity of 550 cubic feet per second. Carter Lake Pressure Conduit and Pressure Tunnel extends to a trash-rack structure in Carter Lake. The stored water in Carter Lake may be released through the Carter Lake Pressure Tunnel and Conduit and the Flatiron Pumping Plant into Flatiron Reservoir. Carter Lake is located in Larimer County, Colorado, in all or parts of Sections 34 and 35, T. 5 N., R. 70 W., and Sections 2, 3, 4, 9, 10, 15 and 16, T. 4 N., R. 70 W., 6th Principal Meridian. The reservoir is formed by placing an earth and rock-fill dam across an unnamed stream which is a tributary of Dry Creek, and by placing two earth and rock-fill dams across saddles. The sources of supply of Carter Lake are project appropriated waters delivered through the inlet tunnel and tributaries of Carter Lake. The total storage capacity of Carter Lake is 112,830 acre-feet. All project water and natural flows to Carter Lake Reservoir are utilized by the project through the outlet (which is also the inlet) and delivered to Flatiron Reservoir through the Flatiron Pumping Plant and/or through an outlet works at the right abutment of Carter Lake Dam No. 1 for delivery of water to the St. Vrain Supply Canal for purposes of irrigation. Horsetooth Feeder Canal has its beginning in Flatiron Reservoir. The canal has various sections, as necessary, and has an initial capacity of 930 cubic feet per second, extends in a northerly direction a distance of 3.5 miles to a control -23-	

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	structure, at which point water is delivered from Tunnel No. 1; the beginning point of which is at a diversion works on the Big Thompson River. The Horsetooth Feeder Canal continues from said Tunnel No. 1, with a capacity of 930 cubic feet per second for 0.2 of a mile, at which point a control-flume delivers either that amount of water diverted through Tunnel No. 1, or that amount of water flowing from Flatiron Reservoir which is in excess of 550 cubic feet per second, or a combination of both, into the Big Thompson River, or to the Big Thompson Powerplant. The Horsetooth Feeder Canal proceeds in a northerly direction by means of various sections, as necessary, and has a capacity of 550 cubic feet per second for a distance of 9.3 miles, delivering water in Horsetooth Reservoir. The Horsetooth Reservoir is located in Larimer County, Colorado, and more particularly in all or parts of Sections 5, 6 and 8, T. 6 N., R. 69 W., Sections 6, 7, 18, 19, 20, 29, 30, 31 and 32, T. 7 N., R. 69 W., and Sections 1, 12 and 13, T. 7 N., R. 70 W., 6th Principal Meridian. The source of supply of the reservoir is the project water delivered by the Horsetooth Feeder Canal, and intermittent streams intercepted by the reservoir. The total storage capacity of Horsetooth Reservoir is 153,252 acre-feet. 11. The Irrigation Supply Canals are the project features constructed by the Government for the delivery of water from the storage reservoirs. These canals deliver water to the North Poudre Ditch, the Cache la Poudre River, Big and Little Thompson Rivers, St. Vrain Creek, Lefthand Creek, Boulder Creek and South Platte River. -24-	

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	The St. Vrain Supply Canal has its beginning in Carter Lake. It extends from its point of beginning, in a southerly direction, with an initial capacity of 625 cubic feet per second, for a distance of 5.2 miles to a diversion works where 50 cubic feet per second may be delivered to the Little Thompson River. The canal continues in a southerly direction, with a capacity of 575 cubic feet per second, for a distance of 4.5 miles where the water is delivered to St. Vrain Creek. The Boulder Creek Supply Canal, an extension of the St. Vrain Supply Canal, has its point of beginning in turnout of Station 518/00 St. Vrain Supply Canal which is Station 518/0580 Boulder Creek Supply Canal. It extends from its point of beginning, in a southerly direction, with a capacity of 200 cubic feet per second for a distance of approximately 16.2 miles to a diversion works where 25 cubic feet per second may be delivered to the Boulder & Lefthand Creek and Boulder & Whiterock Creek Ditches. The canal, with a capacity of 175 cubic feet per second, continues in a southerly direction for a distance of approximately 1 mile, where the water is delivered to Boulder Creek. The South Platte Supply Canal has its beginning in the headgate of a diversion works across Boulder Creek, which is easterly and approximately three miles downstream, from the end of the Boulder Creek Supply Canal. It extends from its point of beginning, in an easterly direction with an initial capacity of 230 cubic feet per second and a terminal capacity of 125 cubic feet per second, for a distance of approximately 24.9 miles. It delivers water to the South Platte River at Station 1796/00 that bears S. 19° 41' E. a -25-	

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	distance of 1044.7 feet from the South 1/4 corner of Section 19, T. 2 N., R. 66 W., 6th Principal Meridian. The Poudre Supply Canal has its beginning in Horsetooth Reservoir. It extends from its point of beginning, in a northerly direction, with an initial capacity of 1,500 cubic feet per second, for a distance of 5.2 miles to a bifurcation structure which is Poudre Supply Canal Station 283/36.6 - Poudre Supply Canal-Windsor Extension Station 0/00. The Poudre Supply Canal continues, with a capacity of 1,500 cubic feet per second, in a northerly direction from the bifurcation structure, through a series of flumes and chutes for 0.1 of a mile, at which point the water is delivered to the Cache la Poudre River. The Poudre Supply Canal-Windsor Extension has its point of beginning in the bifurcation structure at Poudre Supply Canal Station 283/36.6. The canal extends from its point of beginning, in a northerly direction, with a capacity of 250 cubic feet per second, for a distance of 0.5 of a mile, where the water is delivered to the Windsor Canal and Reservoir Company Canal. The North Poudre Supply Canal has its point of beginning in a diversion dam across the Cache la Poudre River, extending from its point of beginning in a northeasterly direction, with a capacity of 250 cubic feet per second, for a distance of 12.6 miles where the water is delivered to the North Poudre Ditch. At the above-described principal points of delivery to the Cache la Poudre River, Big Thompson River, Little Thompson River, St. Vrain Creek, Lefthand Creek, Boulder Creek, South Platte River and the North Poudre Ditch, project -26-	

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	waters are delivered to the Northern Colorado Water Conservancy District for delivery and distribution to the water users for purposes of irrigation through existing, enlarged, improved or new irrigation facilities. METHOD OF OPERATION OF THE COLORADO BIG-THOMPSON PROJECT 13. The Colorado River water delivered to the Northern Colorado Water Conservancy District consists of both direct-flow water from that stream and its tributaries and waters impounded in Shadow Mountain Lake, Grand Lake, Willow Creek Reservoir, and Lake Granby, also known as Granby Reservoir. Water is pumped from Lake Granby in the manner described under the heading of "General Physical Description" of the Colorado-Big Thompson Project. It then flows by gravity from Shadow Mountain Lake into Grand Lake, and from there it is delivered through the Continental Divide by means of the Alva B. Adams tunnel. 14. After leaving the eastern portal of the Alva B. Adams tunnel the Colorado River water diverted to the Eastern slope is conducted by gravity through a system of conduits and powerplants where it has been utilized to the full capacity of the structures described under "General Physical Description" for the generation of electrical energy. Having been thus utilized through its course down the Eastern Slope of the Rocky Mountains for the generation of electrical energy, the Colorado River water is delivered by the United States of America at Horsetooth Reservoir and Carter Lake above described to the Northern Colorado Water Conservancy District for distribution to and utilization by the consumers within the service area of that District. Colorado River water delivered through the Alva B. Adams tunnel is also -27-	

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	used in Estes Park, Colorado. Water from the Big Thompson River is likewise diverted through the power structure above described, and, like the Colorado River water, is utilized by the United States of America for the generation of electrical energy. 15. Colorado River water was first diverted through the Alva B. Adams Tunnel in the year 1947. The following were trans-mountain deliveries of Colorado River water: 1947 - 6,014 A.F.; 1948 - 9,390 A.F.; 1949 - 15,920 A.F.; 1950 - 28,060 A.F.; 1951 - 69,480 A. F.; 1952 - 74,480 A.F.; 1953 - 204,580 A. F.; 1954 - 320,140 A.F.; 1955 (to Sept. 30), 180,830 A.F. The following are deliveries of Colorado River water for beneficial purposes within the Northern Colorado Water Conservancy District: 1947 - 6,009 A.F.; 1948 - 8,819 A.F.; 1949 - 15,160 A.F.; 1950 - 25,683 A. F. ; 1951 - 638 A. F.; 1952 - 41,141 A.F.; 1953 - 177,594 A.F.; 1954 - 301,486 A.F.; 1955 (to Sept.30) 221,486 A.F. WATER USES ON THE WESTERN SLOPE FROM THE COLORADO-BIG THOMPSON PROJECT 16. Green Mountain Reservoir located on the Blue River, a tributary of the Colorado River, impounds water of that stream and Elliott Creek for later release to replace Colorado River water being impounded in Lake Granby, Shadow Mountain Reservoir, Willow Creek Reservoir, or Grand Lake, or diverted directly from the Colorado River and its tributaries through Shadow Mountain Lake, Grand Lake, and thence through the Alva B. Adams Tunnel Water impounded in Green Mountain Reservoir is also utilized for the purposes specified in said Senate Document No. 80. There has been constructed and operated by the United States of America in conjunction with the Green Mountain Reservoir a powerplant by the same name. Through that powerplantthere has been diverted 1726 c.f.s. of the direct flow of the Blue River and Elliott Creek. There has likewise been used through that powerplant 154,645 - 28-	

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	acre-feet of storage for the purpose of generation of electrical energy. There has likewise been impounded and used in addition to the 154,645 acre-feet above mentioned approximately 6,316 acre-feet, which is in addition to the full storage capacity of Green Mountain Reservoir and came about by reason of the subsequent storage after initial releases from said reservoir in question. 17. The Green Mountain Reservoir has been operated by the Secretary of the Interior in a manner which meets the replacement requirements and the other operational features of the project, all of which are specified in Senate Document No. 80, 75th Congress, 1st Session, and set forth under the heading of that document "Manner of Operation of Project Facilities and Auxiliary Features". (See in that connection the Final Judgment and Final Decree entered by this Court predicated upon these Findings of Fact and Conclusions of Law.) STIPULATION OF OCTOBER 5, 1955, FILED WITH THIS COURT ON THAT DATE AND THE AMENDMENT TO THAT STIPULATION, DATED OCTOBER 10, 1955 In an effort to resolve the conflict among the parties to these consolidated cases extensive conferences have been held. The result of those conferences has been an agreement among the parties pursuant to which the respective rights have been set forth and the basis of an amicable settlement declared. There follows a verbatim copy of the Stipulation, together with a copy of the Amendment to it. "STIPULATION "The [parties through their respective counsel] hereby stipulate and agree as follows: -29-	

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	"1. That they and each of them hereby approve the Final Judgment and the Final Decree to which this Stipulation is attached and into which this Stipulation is incorporated by reference; and "Further stipulate and agree to move the Court before which these consolidated cases are pending to enter the Final Judgment and the Final Decree. "2. It is further stipulated and agreed by and between the parties to this cause that they and each of them recognize the rights to the use of water and priorities set forth in the Final Judgment and Final Decree in these cases. "3. It is further stipulated and agreed by and between the parties to this cause that the City and County of Denver and the City of Colorado Springs are in need of adequate supplies of water for municipal purposes both present and future. Likewise recognized by the parties is that the Blue River constitutes a source of supply to which each must look in the future if the respective municipalities are to reach their greatest potential. "4. Notwithstanding their priority dates, the parties hereto further stipulate and agree that the parties to this cause will recognize the right to divert Blue River water by the City and County of Denver and the City of Colorado Springs for municipal purposes only, including domestic, industrial, yard, ground and park care, storage, fire, sewage, military and governmental, excluding, however, water for purposes of irrigation for agriculture, their rights as set forth in the decrees entered by the District Court of Summit County, Colorado, Water District No. 36, Civil Actions Nos. 1805 and 1806, which are part of the -30-	

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	record in consolidated Cases Nos. 5016 and 5017; subject nevertheless to the following limitations: "(a) The rights of the City and County of Denver and the City of Colorado Springs are limited solely to municipal purposes as herein described and subject to the rights of the United States of America to fill each year the Green Mountain Reservoir to a capacity of 154,645 acre feet for utilization by the United States of America in accordance with the "Manner of Operation of Project Facilities and Auxiliary Features" contained in Senate Document No. 80, 75th Congress, 1st Session. "This right to fill the reservoir as herein provided requires an amount of water (after provision for all prior rights) which added to the water in the storage in said Green Mountain Reservoir on a date between April 1st and May 15, to be fixed by the Secretary of the Interior each year in accordance with the plan of operation, would equal 154,645 acre feet had there been no releases from the storage in Green Mountain Reservoir. Provided, however, subject to the decision of the Secretary of the Interior that it will not adversely affect the ability of Green Mountain Reservoir to fulfill its function as set forth in the "Manner of Operation of Project Facilities and Auxiliary Features", contained in Senate Document No. 80, 75th Congress, 1st Session, except only as to the production of power, diversions by the City and County of Denver and Colorado Springs may be made from time to time as approved by the Secretary of the Interior after the snow pack estimate by the United States of America and a determination has been made that it is reasonably probable that the Green Mountain Reservoir will be filled -31-	

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	during the season to the aforesaid capacity of 154,645 acre-feet as measured herein. "(b) The City and County of Denver and the City of Colorado Springs in consideration of the agreement by the United States of America to permit the use of rights to the use of water by those municipalities as provided in this Stipulation will— "(1) Deliver or cause to be delivered to the United States of America electrical energy at Green Mountain Substation or such other place or places to be designated by the Secretary of the Interior within a radius of eighty-five miles airline from Denver and all costs of delivery to be borne by the aforesaid municipalities. "(2) The electrical energy herein provided for will be delivered to the United States in substantially the same amounts, at approximately the same hours and at substantially the same rates of delivery that would have been generated by the Green Mountain Powerplant had it not been for the diversions of the waters by the municipalities in question. "Should the City and County of Denver and the City of Colorado Springs or either of them decide to let any other person, corporation or entity use the power drop from such water at any time, such agreement for such use shall be subject to the regulation and approval of the Secretary of the Interior of the United States. "(c) The City and County of Denver and the City of Colorado Springs will at all times bypass water in quantities sufficient to meet all legal calls of downstream water rights on the Blue River, and within Colorado below the confluence of that stream with the main stream of the Colorado River, -32-	

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	having priorities earlier than the respective priority dates of said cities. This obligation adequately to provide water for the priorities on the Blue River and the Colorado River antedating the respective priority dates of said two cities, may be fulfilled by replacement storage by and on the Blue River or on the Williams River, subject nevertheless to the requirement that the parties provide that the plans for replacement storage will first have been approved by the Secretary of the Interior or his designated representative. Insofar as any proposed replacement storage on Williams River will adversely affect the Parshall Unit of the Cliffs Divide Project duly authorized representatives of the Petitioners in Civil Actions Nos. 5016 and 5017 shall have the right to also approve the proposal or submit it to this Court for adjudication as to legal rights. The water to be exchanged shall be on hand and in storage when the exchange is proposed. Any exchange approved shall not relieve said cities from the obligation to deliver electrical energy for the amount of water diverted from the Blue River. "(d) The City and County of Denver and the City of Colorado Springs agree to hold harmless the United States of America for the full amount of any claims of any kind or character which may be finally determined by reason of their diversions from the Blue River. "(e) To the extent that the importation and the use of water from the Colorado River System, over and above the quantity of water diverted from that source during the last year being October 1st, 1954 to September 30, 1955, by reason of the return flow from the municipal systems of said cities increase the amount of water said cities may lawfully utilize -33-	

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	from all sources in order to supply their municipal needs, through exchange or otherwise, to that same extent the right to divert water from the Blue River shall be correspondingly decreased, if such exchange is not exercised; provided, however, that the obligation to utilize water from the Colorado River System by exchange or otherwise shall be subject to the conditions, limitations, and safeguards as set forth in the following subdivision, the same being subdivision (f) of this paragraph. "(f) In order to accomplish the objectives set forth in the immediately preceding subdivision hereof, the same being lettered (e), each city undertakes to exercise due diligence, within legal limitations and subject to economic feasibility. To that end, the City and County of Denver and the City of Colorado Springs shall, respectively, submit to the Secretary of the Interior on or before December 31st of each calendar year, beginning with the year 1957, a report showing by months for the water year ended September 30th last past, the quantities of water diverted by the reporting city from the Colorado River System, and whether and to what extent such water was used directly or placed in storage. After each city commences use of Blue River water said report shall also show by months for the same period the quantities of return flow from their municipal uses of such Colorado River water accruing to the South Platte River and to Fountain Creek, respectively, as measured at the gauging stations provided for herein. Each such report shall also show what steps, by legal action or otherwise, the reporting city has taken during the period covered by the report to utilize such return flow by exchange or otherwise to the extent water of -34-	

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	the Colorado River System is included therein, so as to reduce or minimize the demands of such city upon Blue River water. The United States of America reserves the right, at any time after use of Blue River water commences hereunder, to apply to this Court for injunctive or other remedial orders, suspending or proportionately reducing diversions or imposing conditions upon the taking of Blue River water by the particular city, if the United States shall establish as a fact that the particular city has failed to exercise due diligence in taking, with respect to return flow of water of the Colorado River System, all steps which, in view of legal limitations and economic feasibility, might reasonably be required of such city in establishing, enforcing, utilizing or operating a plan designed to accomplish said reduction by such city of its Blue River water use. "(g) The City and County of Denver and the City of Colorado Springs will utilize Blue River water for municipal purposes and no other within their metropolitan areas. Such metropolitan area shall be limited to such an area as is reasonably integrated with the development of Denver or Colorado Springs, as the case may be. To the extent that those municipalities utilize water beyond their respective metroplitan areas from sources other than the Blue River, or lease or permit others to utilize waters from other sources for purposes other than municipal in character, the Blue River water diversions will be reduced pro tanto. Provided that the limitations in this subparagraph shall not apply in the case where electrical energy is produced by such water as an incident to its use for municipal purposes. "(h) A reasonable number of gauging stations, -35-	

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	including any relocations designated by the Secretary of the Interior will be installed, operated and maintained by the City and County of Denver and the City of ColoradoSprings for the purposes of measuring /1/ the quantities of water actually diverted from the Blue River; /2/ the increased return flow water into the South Platte River and other streams by reason of the diversion of Colorado River System. Within two years after the date of this Stipulation the cities will install said gauging stations to measure the return flow. As soon as gauging stations are established periodic reports of the flow of water at such stations will be reported to the Secretary of the Interior. "5. The United States does not claim a priority, in connection with the Colorado-Big Thompson Project, senior to the City and County of Denver for the Upper Ute Park Reservoir on the Williams River referred to on pages 21 and 22 in the statements of claim of the United States respecting the Colorado-Big Thompson Project filed in Civil Action 5016 and 5017. "6. Periodic plans for the operation of the Green Mountain Reservoir shall be developed by the duly authorized representatives of the Secretary of Interior in accordance with this Stipulation and submitted to the parties for comments within thirty days after the submission and then transmitted to the Secretary of Interior for his revision and adoption. "7(a) As between the City and County of Denver and the City of Colorado Springs, and without affecting the rights of the other parties hereto, the City of Colorado Springs, under its priorities of May 13, 1948, shall be entitled to divert water from the Blue River and its tributaries, -36-	

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	notwithstanding the Denver rights of June 24, 1946; provided that all diversions from the Blue River and its tributaries under all rights heretofore decreed to or acquired by Colorado Springs, shall not exceed in any calendar year ten percent of the natural flow of the Blue River near Dillon below its confluence with the Snake River and Ten Mile Creek. "7(b) The parties hereto agree to recognize that the City and County of Denver has the following priorities, both conditional and final: "DIRECT RIGHTS: Name — Priority Dates Platte Canon Ditch . . . . . 7-30-1861 Nevada Ditch . . . . . 8-30-1861 Platte Canon Ditch . . . . . 12-30-1863 Platte Canon Ditch . . . . . 12-30-1864 Nevada Ditch . . . . . 12-30-1865 *Borden Ditch . . . . . 5- 1-1866 City Rights . . . . . 12-20-1870 City Rights . . . . . 12-31-1874 City Ditch . . . . . (11-28-1860 (11- 1-1873 (3- 7-1882 *Weed Ditch #42 . . . . . 5-1-1875 City Right . . . . . 9-10-1878 *High Line Canal . . . . . 1-18-1879 * 1/2 Weed Ditch #102 . . . . . 6-1- 1879 City Right . . . . . 6-30-1880 *Love & Rayner Ditch . . . . . 5- 8-1881 *1/2 Little Channel Ditch . . . . 5- 1-1882 *Island Ditch . . . . . 5-20-1885 City Right . . . . . 10- 1-1889 -37-	

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	City Right . . . . . 9-1 -1892 City Right . . . . . 5-1 -1899 City Right . . . . . 12-6 -1910 Cherry Creek Galleries . . . . . 5-1 -1887 Harriman Ditch: Undivided One-half: Turkey Creek . . . . . 4-16-1868 Bear Creek . . . . . 3-16-1869 Bear Creek . . . . . 5- 1-1871 Bear Creek . . . . . 3- 1-1882 Entire: Bear Creek . . . . . 12-5-1889 Bear Creek . . . . . 12-5-1889 Turkey Creek . . . . . 2-1-1890 Turkey Creek . . . . . 2-1-1890 Bear Creek . . . . . 8-15-1892 Bear Creek . . . . . 8-15-1892 Turkey Creek . . . . . 8-15-1892 Turkey Creek . . . . . 8-15-1892 South Boulder Diversion Conduit . . . . 1- 1-1930 Moffat Tunnel Diversion Unit . . . . 7- 4-1921 Williams Fork Diversion Unit . . . . 7- 4-1921 Storage Rights: Name — Date Antero Reservoir . . . . . 10- 8-1907 11-Mile Canon Reservoir . . . . . 7-10-1926 Lake Cheesman . . . . . (6-27-1889 (9-24-1893 Platte Canon Reservoir . . . . . 9- 5-1902 Marston Lake . . . . . 4- 1-1911 Soda Lakes . . . . . 2-11-1893 -38-	

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	Ralston Reservoir . . . . . (1 -1-1930 (10-31-1932 Reservoir No. 22 . . . . . 7- 4-1921 5-10-1945 Williams Fork Reservoir . . . . . 11-10-1935*** Two Forks Reservoir (To the extent the same is to be filled from the South Platte River.) (1-18-1905 (5- 1-1926 Grant Reservoir Strontia Reservoir Esterbrook Reservoir Vasquez Reservoir . . . . . (7 - 4-1921 7 - 7-1926 Steeleman Reservoir . . . . . 9-22-1937 St. Louis Reservoir . . . . . 7- 4-1921 *Divertible only from April 15 to August 10, inclusive. **City Right in High Line Canal is variable and intermittent. ***Subject to limitation herein provided in paragraph 4(c) respecting the Parshall Unit of the Cliffs Divide Project and the right to contest said decree because of the failure of the City and County of Denver to exercise due diligence. The right is reserved to the parties to this Stipulation to contest the conditional decrees on the grounds that the City and County of Denver has failed from the date of this Judgment to prosecute its claims with due diligence provided further that the conditional decree to the Williams Fork Reservoir may be contested for failure to exercise due diligence at any time, subject to any applicable statutes of limitation. "8. The City of Englewood shall have a right to divert up to 19,500 acre-feet of water annually from the sources and by means hereafter described; provided, however, that such diversion shall not be exercised by the City of -39-	

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	Englewood when the natural flow of the Colorado River is less than 1,250 c.f.s. at the Shoshone diversion dam, and required to fill vested rights, and its right to divert shall at all times be subject to diminution to the extent necessary to fill all senior rights and shall not be exercised at any time so as to interfere with any uses of water by the United States in connection with the Colorado-Big Thompson Project or in carrying out any part of the "Manner of Operation of Project Facilities and Auxiliary Features", contained in Senate Document 80, 75th Congress, 1st Session. The City of Englewood in connection with its right to divert as herein set forth shall have the right to construct replacement reservoirs to the extent required to meet all senior rights with which its diversions may be in conflict. Subject, nevertheless, to the approval of the Secretary of the Interior of any proposal thus to provide replacement storage. "The rights to divert by the City of Englewood are as follows: a. Hamilton-Cabin Creek Ditch: 70 c.f.s. having as its source Hamilton Creek and all intermediate drainage channels or slopes between Hamilton Creek and North Ranch Creek, including Cabin Creek, Little Cabin Creek and all named and unnamed streams but not from North Ranch Creek itself. b. Extension and Enlargement of Hamilton-Cabin Creek Ditch: 25 c.f.s. having as its source Meadow Creek and intermediate drainage channels or slopes between said Meadow Creek and Hamilton Creek, including Trail Creek and Hurd Creek, and any and all unnamed and other named streams -40-	

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	but not from Hamilton Creek itself. c. Cabin Creek Reservoir (Regulatory only): 4,250 acre-feet with its source Cabin Creek. d. Meadow Creek Reservoir (Regulatory only): 5,100 acre-feet with its source Meadow Creek. "Provided, however, that the rights to the use of water herein recognized in the City of Englewood may be diverted only for municipal purposes: Subject nevertheless to the right of all parties to this Judgment to contest the conditional decrees on the grounds that the City of Englewood has failed after the date of this Judgment to prosecute its claims with due diligence. "9. The City of Englewood will transfer to the United States all of its rights to the use of water previously claimed by the City of Englewood as follows: In Ranch Creek Reservoir of July 15, 1931, for 478,079,187 cubic feet annually, source of water from RanchCreek and Hurd Creek; in the Enlargement of Ranch Creek Reservoir, with a priority date of October 1, 1933, for 483,858,406 cubic feet annually, the source of water, Ranch Creek, Hurd Creek, Meadow Creek and Fraser River. "10. The City and County of Denver and the City of Colorado Springs agree that if the State of Colorado is required by reason of the Colorado River Compact, the Upper Colorado River Basin Compact, the Boulder Canyon Project Act as supplemented and amended, or any other compacts or laws, to deliver any water from the State, they will discontinue their diversions from the Blue River under the provisions of this Stipulation in advance of the discontinuance of the diversions and utilization of water by the Colorado-Big -41-	

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	Thompson Project or any of its components or units on the Eastern or Western Slopes of Colorado. The City of Englewood agrees to a similar limitation on its rights of diversion under the provisions of this Stipulation. "11. It is stipulated and agreed by and between the parties to this Stipulation that the Secretary of the Interior shall promptly present to the Speaker of the House of Representatives and the Vice President for transmittal to the proper Committees copies of this Stipulation, informing them of the course that has been adopted in regard to the subject matter of this Stipulation. If no Committee of the Congress has reported a bill disapproving this Stipulation and Final Decree entered thereon within 120 days from the date the 84th Congress, Second Session convenes, or if such a bill in any event is not passed and approved during said Congress, the agreements contained herein shall become binding and of full force and effect as among the parties. "12. It is understood and agreed between the parties to this Stipulation that if the proposed arrangement cannot be effectuated because of events described in Paragraph 11 of this Stipulation, then, and in that event without affecting the finality of the Judgment in these cases, the City and County of Denver and the City of Colorado Springs, or either of them shall have the right to present within a reasonable time to this Court for trial on the merits the sole question of whether, by reason of claimed "domestic" use they have a preferential right under the Colorado Constitution Article XVI, Section 6, or the Colorado River Compact, Article IV, irrespective of the prior rights of the United States of America in the Blue -42-	

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	River for the purpose of generation of electrical energy to take and divert that water for their claimed "domestic" use. "Dated this 5th day of October, 1955." /Signatures of respective counsel./ "AMENDMENT TO STIPULATION DATED OCTOBER 5, 1955 AND FILED WITH THE COURT ON THAT DATE "The parties hereto stipulate and agree that the priority date of September 14, 1933, of the United States of America in the Blue River and its tributaries set forth in the Final Judgment referred to in paragraph numbered 1 of the Stipulation of October 5, 1955, and filed as of that date, be and the same is hereby amended by substituting in lieu thereof a priority date of August 1, 1935. "Dated this 10th day of October, 1955." /Signatures of respective counsel/ RIGHTS OF THE CITY AND COUNTY OF DENVER AND THE CITY OF COLORADO SPRINGS TO THE USE OF WATER IN THE BLUE RIVER AND ITS TRIBUTARIES 19. There were decreed to the City and County of Denver by the District Court of Summit County, Colorado, Water District No. 36, in Civil Actions No. 1805 and 1806 the following rights to the use of water: a. Montezuma Tunnel 6-24-46 788 Sec. Ft. b. Dillon Reservoir 6-24-46 252,678 Acre-feet. Reference to the Stipulation, as amended, which is set forth above, is made in regard to these rights to the use of water. The rights of the City and County of Denver to the use of water in the Blue River and its tributaries are more -43-	

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	fully described in the decrees entered in Water District No. 36, Civil Actions No. 1805 and 1806. Insofar as they describe the rights to the use of water adjudicated to the City and County of Denver those decrees are incorporated into these Findings of Fact and Conclusions of Law by reference and made a part of them as fully as though they were set forth in full herein. 20. Colorado Springs has had decreed to it by the District Court of Summit County, Colorado, Water District No. 36, the following rights to the use of water: a. Continental-Hoosier Diversion System, August 5, 1929, a final decreed right of 77 c.f.s., and a conditional right of 10 c.f.s. of August 5, 1929. b. Continental-Hoosier Diversion System, May 13, 1948, 400 c.f.s.; c. Continental-Hoosier Diversion System, May 13, 1948, total storage 5,306 acre-feet. Reference is here made to the Stipulation, as amended, and hereinabove set forth, which, with the exception herein noted, pertains only to the Colorado Springs 1948 rights described in subparagraphs b. and c. last above; the 1929 priority rights mentioned in subparagraph a. last above apply and are pertinent only for the purpose of computing the division of water between Denver and Colorado Springs as provided in paragraph 7(a) of said Stipulation. Provided, however, that those diversions described in subparagraphs a, b, and c above, will be made solely for municipal purposes; subject nevertheless to the right of the parties to the Final Decree to contest the conditional decrees on the grounds that the City of Colorado Springs has -44-	

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	failed from and after the date of the Final Decree to prosecute its claims with due diligence. The rights to the use of water by the City of Colorado Springs are more fully described in the Decree entered in Water District No. 36 in connection with the aforesaid rights and these descriptions are incorporated herein and made a part hereof as though they were set forth in full. 21. The City and County of Denver holds rights to the use of water in the Williams Fork River, the Fraser River, the South Platte River and their respective tributaries identified by the decrees listed in paragraph 7(b) of the stipulation, as amended, and as set forth above. 22. The references to the Williams Fork River and the Williams River throughout these Findings of Fact and Conclusions of Law, the Stipulation, as amended, the Final Judgment and the Final Decree in these consolidated cases means the same stream, which is a tributary to the Colorado River and enters that stream near Parshall, Colorado. RIGHTS OF THE CITY OF ENGLEWOOD TO THE USE OF WATER FROM THE COLORADO RIVER AND ITS TRIBUTARIES Heretofore there has been decreed in Water District No. 51 by the District Court in and for the County of Grand, State of Colorado, in Civil Action No. 657, to the Moffat Tunnel Water and Development Company, a Colorado corporation, predecessor in interest to the City of Englewood, the following conditional rights: Hamilton Cabin Creek Ditch, priority July 2, 1932, 70 c.f.s.; Extension and Enlargement of Hamilton Cabin Creek Ditch, priority July 2, 1932, 25 c.f.s.; Cabin Creek Reservoir, priority date July 2, 1932, 4,250 acre-feet; Meadow -45-	

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	Creek Reservoir, priority July 2, 1932, 5,100 acre-feet; Ranch Creek Reservoir, priority date July 15, 1933, 478,079,187 cubic feet; Enlargement of Ranch Creek Reservoir, priority October 1, 1933, 483,858,406 cubic feet; Fraser Ditch, priority October 1, 1933, 30 c.f.s. The aforesaid court has entered formal decrees of diligence in each even-numbered year beginning with 1940 to and including the year 1954. All of said rights of the Moffat Tunnel Water and Development Company have been conveyed to the City of Englewood, a municipal corporation of the State of Colorado. The sources of supply for the above-named structures are Hamilton Creek, Cabin Creek, Ranch Creek, Hurd Creek, Meadow Creek, Fraser River, and other unnamed tributaries of the Colorado River. These rights to the use of water are more particularly described in and they are subject to the Stipulation, as amended, as set forth above, and in the Final Decree which is predicated upon these Findings of Fact and Conclusions of Law. 24. On August 1, 1935, the United States of America and the Northern Colorado Water Users Association initiated the Colorado-Big Thompson Project and all of its component parts described under the heading "General Physical Description", including Green Mountain Reservoir and Powerplant, and thereafter the United States of America prosecuted the Project to completion with due diligence. The United States of America within a reasonable time has diverted, impounded and applied to the beneficial uses specified in said Senate Document No. 80 the waters of the Colorado River and its tributaries, including the Blue River and its tributaries -46-	

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	to the full capacity of all of the structures of that project. The rights to the use of water of the United States of America are set forth specifically in the Final Judgment and in the Final Decree, both of which are predicated upon these Findings of Fact and Conclusions of Law. Reference is made to the Stipulation, as amended, which is set forth above in regard to the rights to the use of water of the United States of America. The United States of America shall have a priority for the Colorado-Big Thompson Project of August 1, 1935, in the Colorado River and its tributaries and in the Blue River and its tributaries. 25. Neither these Findings of Fact nor any single Finding of Fact contained herein shall be binding upon the intervenors in Civil Action No. 2782 of these consolidated cases. Findings of Fact and conclusions of law in regard to each of the intervenors shall be entered following the final hearing of the issues raised by their respective pleadings, and the responsive pleadings of the United States of America in the cases of the intervenors are not disposed of on motion and the cases are actually tried on the merits. Based upon the preceding Findings of Fact, including the Stipulation as amended, as set forth above, the following conclusions of law are entered: CONCLUSIONS OF LAW Based upon the evidence adduced in these consolidated cases and the stipulation, as amended, and set forth in the Findings of Fact, it is concluded: (1) The parties to these consolidated cases are entitled to the priorities of rights to the use of water in the Colorado River, Williams Fork River, Fraser River, Blue -47-	

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	River and South Platte River, and their respective tributaries, all as set forth in the Findings of Fact, for the amounts and as of the priority dates therein specified. Those priorities are set forth in the Final Judgment and the Final Decree which are predicated upon these Findings of Fact and Conclusions of Law. (2) The Secretary of the Interior is required to operate and administer the Colorado-Big Thompson Project in accordance with the provisions of said Senate Document No. 80 which are set forth under the heading of that document designated "Manner of Operation of Project Facilities and Auxiliary Features", the Stipulation as amended and set forth above, the Final Judgment and the Final Decree in these consolidated cases. 3. The Final Judgment and Final Decree attached to and accompanying these Findings of Fact and Conclusions of Law are predicated upon those findings and conclusions. Moreover, in the event the Stipulation, as amended, or any part of it should at any time be declared invalid the finality of the Final Judgment and the Final Decree respecting the priorities of the parties to these consolidated cases will in no way be affected by such a determination, reserving nevertheless the right of the City and County of Denver and the City of Colorado Springs to move for the resolution of the question saved as set forth in paragraph 12 of the Stipulation, as amended, or to take such other steps as may be saved to said cities under said paragraph 12. Entered this 12 day of October, 1955. William Lee Knous WILLIAM LEE KNOUS District Judge -43-	

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	Aurora water project ahead of schedule, below budget - The Denver Post Page 1 of 3 denverpost.com THE DENVER POST aurora water project Aurora water project ahead of schedule, below budget By Carlos Illescas *The Denver Post* Posted: 03/15/2010 01:00:00 AM MDT Dave Marciniak of CH2M Hill checks on the ultraviolet facility that will help purify water in the city of Aurora s Prairie Waters Project, which will provide about 3.3 billion gallons per year. (John Prieto, The Denver Post) AURORA — Prairie Waters, the city's new $659 million water-purification and -recycling system, will be completed ahead of schedule and almost $100 million under budget. Project managers attribute the savings to good planning and trimming nonessential features from the plant. They also say the bad economy helped ratchet costs down. Contractors desperate for work submitted low bids for many of the jobs in the construction of the system, Aurora Water spokesman Greg Baker said. "We took advantage of a strong bidding environment," he said. The project was estimated to cost about $850 million, but that was revised to $754 million before construction started in 2007. Three years later, with Prairie Waters more than 90 percent complete, the final tab should be closer to $659 million when the project comes on line by the end of the year, Baker said. Prairie Waters will draw South Platte River water near Brighton, downstream from the Denver Metro Wastewater Reclamation District's plant. The water will then be sent through sand and charcoal filters and then piped 34 miles to a state-of-the- art treatment facility just north of Aurora Reservoir. The water will be treated with chemicals and Advertisement Print Powered By FormatDynamics http://www.denverpost.com/frontpage/ci_14676275 3/16/2010	

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	Aurora water project ahead of schedule, below budget - The Denver Post Page 2 of 3 denverpost.com THE DENVER POST powerful ultraviolet lights to raise it to drinking-water quality, officials say. Prairie Waters will provide 10,000 acre-feet of water annually, about 3.3 billion gallons of water, which is 20 percent of the water Aurora uses. An acre-foot of water typically is enough to serve the needs of two families of four for a year. The city has raised residential water prices, nearly quadrupled tap fees and issued $450 million in bonds to pay for the project. Aurora Mayor Ed Tauer said the catalyst for the project was the 2002-03 drought, when the city was down to 26 percent of its water supply. "This really solidifies our water supply for our residents even in really bad years," Tauer said. "It means that our ability to use water in our homes is much less dependent on the year- to-year weather." Water experts are lauding Aurora's efforts in creating a renewable water system that recycles water over and over again instead of relying on mountain snow or receding aquifers. In good-water years, Aurora could lease water to communities such as Douglas County that are searching for new water sources. "Aurora Water has found something that of course will answer their concerns but also something to help the metropolitan area," said Rocky Wiley, a former water-management planner for Denver Water who now works for a consulting firm. "It's a viable answer, and it's wet water," Wiley said. The Peter D. Binney Water Purification Facility, named for the man who devised and implemented the Prairie Waters Project, is truly high-tech. It will purify the water with 14 ultraviolet reactors that are about 15 times more powerful than those used at other facilities, officials said. The reactors were installed because Aurora Water anticipates regulations by the U.S. Environmental Protection Agency that will require residual pharmaceuticals to be scrubbed from drinking water. The ultraviolet light makes the pharmaceuticals inert or harmless, Baker said. Trace amounts of pharmaceuticals have been detected in the nation's water supply, mostly from animal agriculture and humans who flush drugs down their toilets, according to the American Water Works Association. Up to 50 million gallons of water a day will be treated at the purification facility. During peak-demand periods, water treated at the facility will be mixed with mountain water and piped to Advertisement USF UNIVERSITY of SAN FRANCISCO End-to-End Training as It Should Be: 100% ONLINE! Earn Your Master Certificate in Internet Marketing → SEO & Paid Search → Online Branding → Web Analytics → Internet Law → Media Buying → Social Media 1-800-268-9943 USanFranOnline.com/FD Print Powered By FormatDynamics http://www.denverpost.com/frontpage/ci_14676275 3/16/2010	

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	Aurora water project ahead of schedule, below budget - The Denver Post Page 3 of 3 denverpost.com THE DENVER POST homes. "You're always planning for the hottest day in July, when people are watering their lawns, taking showers, washing their cars, when every spigot is open," Baker said. "We had to make sure our water supply would meet that demand." Aurora Water officials expect to dedicate the facility in September and will begin testing the system by December. It is scheduled to be running in full by the late spring or early summer of next year. "We really have a world-class project here that's going to make a difference next year and for the next 50 years," Tauer said. *Carlos Illescas: 303-954-1175 or cillescas@denverpost.com* Advertisement USF UNIVERSITY of SAN FRANCISCO End-to-End Training as It Should Be: 100% ONLINE! Earn Your Master Certificate in Internet Marketing → SEO & Paid Search → Online Branding → Web Analytics → Internet Law → Media Buying → Social Media → 1-800-268-9943 USanFranOnline.com/FD Print Powered By FormatDynamics http://www.denverpost.com/frontpage/ci_14676275 3/16/2010	

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Comment #773 Joe Pandy, Manager Granby/Silver Creek Water & Wastewater Authority P.O. Box 440 Granby, CO 80446 and Michael R. Wageck, Chairman Granby/Silver Creek Water & Wastewater Authority P.O. Box 440 Granby, CO 80446	From: Joe Pandy [mailto:jpandy@mpei.com] Sent: Wednesday, March 17, 2010 12:58 PM To: MOFFAT.EIS@usace.army.mil Cc: Wally Baird; Chris Purrington; Cindy Seader; Doug Bellatty; Joe Pandy; Kirk Klancke; Larry Wergin; Laura Schonlau; Lee Leavenworth; Louis Meyer; Mike Wageck; Rich Schroer; Sharon Spurlin Subject: Granby/SilverCreek Water & Wastewater Authority letter re: Moffat firming project draft EIS Scott Franklin-Project Manager: Attached please find the Granby/SilverCreek Water & Wastewater Authority letter of 3/17/10 relative to the Moffat firming project draft Environmental Impact Statement. An original of this letter was U.S. certified mailed to you as well. Joe Pandy Manager Granby/SilverCreek Water & Wastewater Authority 970.531.8518 - Moffat firming EIS.pdf	***Comment #773-11*** *(ID 4562)**:*** *Attached please find the Granby/SilverCreek Water & Wastewater Authority letter of 3/17/10 relative to the Moffat firming project draft Environmental Impact Statement. An original of this letter was U.S. certified mailed to you as well. ATTACHMENT The Granby/SilverCreek Water & Wastewater Authority herewith expresses its concerns with the draft Environmental Impact Statement (EIS) submitted by the Denver Water Board for their proposed Moffat Firming Project. Our concerns which follow are impacts to the Authority which have not been identified in the draft EIS, or if identified, have no mitigating plans proposed.* **Response #773-11:** The U.S. Army Corps of Engineers (Corps) received both the electronic and hard copies of the Colorado River Water Conservation District's comments. ***Comment #773-14*** *(ID 4561)**:*** *Introduction The Granby Silver Creek Water and Wastewater Authority (Authority) provides potable water service and wastewater collection system services to approximately 1,618 existing Single Family Equivalents (SFEs) and 3,305 existing platted SFEs. The Authority was authorized under a "Joint Exclusion).>Ian" that consolidated water and wastewater services for the Silver Creek Water and Sanitation District and land within the Town of Granby that lies on the South side of the Fraser River. The Authority owns and operates the wholesale facilities for the potable water system including wells, which provide the source of supply, treatment, pumping, transmission and storage facilities. The Authority also owns and maintains the wholesale wastewater conveyance facilities including lift stations, trunk and interceptor sewers. The Authority's northern boundary is the Fraser*

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	Attachments: **Granby/SilverCreek** **Water & Wastewater Authority** PO BOX 440 GRANBY, CO 80446 970 887-2501 March 17, 2010 Scott Franklin Moffat EIS Project Manager 9307 S. Wadsworth Blvd. Littleton, Colorado 80128 Re: Moffat Firming Project Mr. Franklin: The Granby/SilverCreek Water & Wastewater Authority herewith expresses its concerns with the draft Environmental Impact Statement (EIS) submitted by the Denver Water Board for their proposed Moffat Firming Project. Our concerns which follow are impacts to the Authority which have not been identified in the draft EIS, or if identified, have no mitigating plans proposed. **Introduction** The Granby Silver Creek Water and Wastewater Authority (Authority) provides potable water service and wastewater collection system services to approximately 1,618 existing Single Family Equivalents (SFEs) and 3,305 existing platted SFEs. The Authority was authorized under a "Joint Exclusion Plan" that consolidated water and wastewater services for the Silver Creek Water and Sanitation District and land within the Town of Granby that lies on the South side of the Fraser River. The Authority owns and operates the wholesale facilities for the potable water system including wells, which provide the source of supply, treatment, pumping, transmission and storage facilities. The Authority also owns and maintains the wholesale wastewater conveyance facilities including lift stations, trunk and interceptor sewers. The Authority's northern boundary is the Fraser River immediately adjacent to the Town of Granby. The Authority Master Plan prepared by Purrington Engineering projects an ultimate build out of 8,575 SFEs. The Authority source of supply is provided by 4 alluvial wells (3 wells in operation) that are tributary to the Fraser River. The wells are located near Highway 40 and the Fraser River. The maximum production of each well is approximately 450 gpm. The wells are decreed for 500 gpm. The wells are located approximately 500 ft. apart and 500 ft. from the Fraser River. The wells are approximately 100 ft. deep and classified as shallow alluvial wells.	*River immediately adjacent to the Town of Granby. The Authority Master Plan prepared by Purrington Engineering projects an ultimate build out of 8,575 SFEs. The Authority source of supply is provided by 4 alluvial wells (3 wells in operation) that are tributary to the Fraser River. The wells are located near Highway 40 and the Fraser River. The maximum production of each well is approximately 450 gpm. The wells are decreed for 500 gpm. The wells are located approximately 500 ft. apart and 500 ft. from the Fraser River. The wells are approximately 100 ft. deep and classified as shallow alluvial wells. The ultimate water supply demand is projected to be 3,000 gpm to serve the 8,575 SFEs. In order to meet that demand, an additional 5 wells of similar size will be required. Well permits have been obtained for the future wells. The location of the future wells 5 through 8 are located upstream and adjacent to the Fraser River.* **Response #773-14:** Information provided in the Draft Environmental Impact Statement (DEIS) Sections 3.1 and 3.2 gives the reasons the Moffat Collection System Project (Moffat Project or Project) would not cause a reduction in groundwater levels within any of the West Slope basins, except minor temporary declines are possible in areas immediately next to some of the streams during the high-runoff period. Along the Fraser River, groundwater levels may decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Board of Water Commissioner (Denver Water) diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that detailed study Site Fraser River (FR)1 near Winter

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	The ultimate water supply demand is projected to be 3,000 gpm to serve the 8,575 SFEs. In order to meet that demand, an additional 5 wells of similar size will be required. Well permits have been obtained for the future wells. The location of the future wells 5 through 8 are located upstream and adjacent to the Fraser River. **Water Supply and Water Quality Concerns** The Authority is concerned about impacts to its physical water supply and water quality due to the proposed increased diversions from the Fraser River. The DEIS proposes an additional 18,000 Ac-Ft diversion out of the headwaters of the Fraser River upstream from the Authority's wells. The DEIS does not comment on any mitigation to offset the impact to the Authority water supply. The scoping of the DEIS is too broad to discuss specific impacts and as such fails to adequately address the intent of the NEPA process. For municipal water and wastewater providers on the Western Slope, the impact from increased diversions results in less water for drinking water purposes, and less water for treatment of wastewater. More specific comments are as follows. 1. Increased diversions out of the Fraser River upstream from the Authority wells can negatively impact the wells. The DEIS did not discuss the specific impact to this reach of the Fraser River. The Authority wells have a direct connection to the surface flows in the Fraser River. The flows in the Fraser directly impact the well capacity, cone of influence, static water elevations, well drawdown, storage capacity and transmissivity of the Authority wells and aquifer. The natural flow regime of the River, which has already been impacted by the historical Moffat diversions, will be altered with additional diversions. The cumulative impact has the potential to greatly impact the flow regime of the river including channel location, meanders, hydraulic grades, bank and bed load stability, sedimentation, amount and quality of adjoining wetlands and other stream mechanic characteristics. These changes can upset the fragile balance that defines the surface and groundwater regime that influences the Authority wells. 2. Most of the diversions occur during the spring runoff when flows in the Fraser reach peak of the annual hydrograph. These flushing flows naturally serve to clear sediment and maintain stream channels. Stream Channel location is critical to the balance of water tributary to alluvial wells. Stream Channels too far from the wells can impact the cone of depression. Channels too close to the wells can impact the influence from surface water to the well. If on-going particulate analysis testing shows influence from surface waters, filtration and other treatment processes will be necessary to meet provisions of the Safe Drinking Water Act.	Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. Even though the slight stream level changes would cause similar changes in groundwater levels next to the Fraser River, the effects on alluvial groundwater levels near Granby would be small compared to the natural seasonal and year to year fluctuations. The Project effects on groundwater levels in the Granby Silver Creek Water Authority wells are expected to be less than the daily fluctuations in drawdown caused by pumping the wells. Specific data and information from the DEIS and the rationale for these conclusions are further described below. Groundwater/Surface Water Interactions The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water diversion structures west of the Continental Divide. Final Environmental Impact Statement (FEIS) Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River Basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the

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	3. The tributary watershed of this reach of the Fraser River is heavily impacted by the devastation of the Pine Beetle epidemic. Sediment and particulate loading to this reach of the River will change. The dead trees will be subject to increased fire hazard. A fire in the watershed will increase erosion, pine needle and sediment loads to this reach of the Fraser. The natural flushing flows from spring runoff will be necessary to scour the added sediment load and retain the natural bed loading and stream channel regime. 4. Alluvial Wells require functioning natural wetlands to serve as natural reservoirs and filtering mechanisms to filter and recharge the natural alluvial water supplies. The incremental and cumulative impacts of dry season and peak season flows impact the fragile balance of healthy wetlands. This project removes the natural peak hydrograph flows which can upset this balance. 5. The Authority wells rely upon the natural physiological and biological processes of the natural wetlands, geological formations, and alluvial aquifer characteristics to naturally filter Fraser River surface waters to provide safe drinking water. Currently the only post treatment required is disinfection through chlorination and the addition of a corrosion inhibitor through a polyphosphate to meet action levels for lead and copper concentrations in the distribution system. Pursuant to the Federal Safe Drinking Water Act and the Primary Drinking Water Regulations of the Colorado Water Quality Control Commission, water that is under the influence of surface water is required to provide extensive and full filtration processes. The Authority Wells rely upon this natural watershed approach to provide this filtration. The Authority is required to perform particulate analysis (PAs) to demonstrate influence from surface water. The PA test filters a known volume of raw water through a fine filter to allow examination of particles such as algae, diatoms, rotifers et al. to determine a direct link between surface water and ground water. Thus far the Authority wells have tested negative for influence from surface water. Upsetting the balance of the watershed by reduced flows can impact the relationship between groundwater and surface water for shallow alluvial wells. 6. The cumulative impact of diverting the highest quality water high in the watershed has the direct impact in concentrating contaminants lower in the watershed. The existing proposed Moffat diversions decrease the highest quality water, while known sources of contaminants lower in the watershed remain. Examples of sources of contaminants include both point sources (Wastewater Treatment Plants) and non point sources of runoff (Urban Runoff). Wastewater plants between the Moffat Diversion intakes and the Authority wells include: i. Winter Park Water and Sanitation District ii. Grand County Water and Sanitation District	whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent United States Geological Survey (USGS) Technical Report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the Williams Fork watershed where there are other Denver Water diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because these areas do not lie downstream of any Denver Water diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Moffat Project. Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to the Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt

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	iii. Winter Park Ranch Water and Sanitation District iv. Town of Fraser v. Tabernash Meadows Water and Sanitation District Wastewater treatment plant return flows of treated effluent comprise a much higher concentration of native flows when headwaters are diverted. The Fraser River during certain times of the year is becoming increasingly effluent dominated. Wastewater Treatment facilities are designed to comply with Provisions of the Clean Water Act. Those requirements include discharge limitations on key parameters such as Biochemical Oxygen Demand (BOD5), Suspended solids, (SS) ammonia, pH, Chlorine, et al. These requirements do not include many emerging contaminants, endocrine disrupters, herbicides, pesticides, personal health care products, pharmaceutical products and many other volatile organic and synthetic organic chemicals. Most of these contaminants are dissolved constituents which are not taken out during the natural filtration process of water movement through the alluvial aquifer. Unlike surface water many of these dissolved constituents can remain in groundwater for long periods of time. When the dilution water is reduced through diversions, the concentrations of these contaminants increase. These increased concentrations impact drinking water and have a direct correlation with human health impacts. The addition of a disinfectant and a corrosion inhibitor are the only treatment to the Authority well water beyond the natural filtration of the wetlands and aquifer. Increased Total Organic Carbon concentrations in the Fraser River ultimately lead to increased Total Organic Carbon concentrations in the Authority's wells. TOC, when combined with chlorine, create carcinogenic precursors and regulated under CDPHE's Disinfection By-product Rule. The incremental and cumulative impacts of the Moffat diversions result in increased difficulty in complying with these drinking water regulatory requirements. Other sources of contaminants include non-point sources of agricultural runoff, urban runoff, deicing agents used for roadway maintenance, salinity, TDS, and naturally occurring iron and Manganese. All of these contaminants concentrations increase due to the cumulative and incremental diversions of the good quality upper basin water. As these contaminant concentrations increase expensive drinking water treatment process, including membranes and reverse osmosis treatment, will be required to meet provisions of the Safe Drinking Water Act. These treatment processes are extremely expensive to construct and maintain. Membranes and Reverse Osmosis require very high feed pressures and are much more energy intensive then conventional treatment.	into the ground surface would not be altered by the Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the Moffat Project only has the potential to slightly reduce groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs. A USGS Technical Report (Apodaca and Bails 1999) for the Fraser River Basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River

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	7. Authority Well #4 has elevated manganese concentrations that exceed EPA's Secondary Contaminant level of .05 mg/l. Continuous pump testing of Well 4 has shown that when the pump is first turned on and is pumping water from the cone of influence manganese levels are at their highest and then decrease over time as the pump continues to run. It is believed that the higher levels are indicative of water quality directly from the groundwater and cone of influence. As the well continues to pump, drawdown rates decrease and manganese levels decrease which would suggest a direct influence from Fraser River surface water. As surface water flows decrease and hydraulic gradients decrease the balance between a gaining stream and or declining stream (is groundwater adding to surface water or is surface water influencing groundwater) changes. Influence from groundwater to surface water increases because of the lower phreatic head conditions. This can impact the concentration of dissolved contaminants over time and further concentrate and increase manganese levels. 8. Wastewater Treatment Plant Discharge Permits will become more stringent. The cumulative impact of diversions also impacts wastewater treatment plant discharges. The Colorado River Basin Salinity Control Act limits municipal wastewater TDS discharges to the Colorado River Basin to an incremental increase of 400 mg/l greater than source water. Paired sampling of most plants show that treatment plant salinity concentrations in discharges exceed the 400 mg/l increase over and above source water. The Authority conveys wastewater to the Granby Sanitation District which owns and maintains a treatment facility along the Fraser River downstream from the Authority and upstream from the confluence of the Fraser and the Colorado River. These impacts to wastewater treatment plants will cause treatment plant capital and operating costs to increase in order to meet provisions of the Clean Water Act. These increased costs will directly impact Authority customers. 9. Wastewater Treatment Plant discharge limitations vary monthly and are based upon 30 day monthly averages. Colorado regulations determine permissible effluent discharge standards for wastewater treatment facilities. These standards establish water quality effluent limitations specifically based on acute and chronic low flows. The acute low flow referred to as 1E3 represents the one day low flow recurring in a three year interval and is used in developing limitation based on an acute standard. The 7 day average low flow, 7E3, represents the seven day average low flow recurring in a 3 year interval, and is used in developing limitations based on a Maximum weekly average temperature standard. As natural flows decrease, effluent limitations will be more stringent through simple mass balance calculations. More stringent effluent limitation will require more extensive treatment processes and again will directly impact Authority customers.	basin downstream of the Denver Water diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving groundwater discharge. The groundwater level contours also indicate that recharge occurs in higher elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Stream flow changes were modeled using the Platte and Colorado Simulation Model (PACSM) (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. DEIS Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the

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	Conclusions Increased diversions out of the Fraser River will negatively impact the Authority source of drinking water. Increased diversions will also negatively impact Authority customers through increased wastewater treatment plant costs. The DEIS fails to discuss the specific impacts to these facilities and thus does not discuss mitigation measures. The Corp of Engineers is tasked with insuring compliance with provisions of EPA and the Clean Water Act. The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the nation's water". A more thorough and specific review of these impacts will confirm that the incremental and cumulative impact of these diversions is not consistent with the goals of the Clean Water Act. **Adoption of Other Comments by Reference:** The Authority also hereby adopts and incorporates herein by reference the comments submitted by the Winter Park Water and Sanitation District, the Town of Winter Park, the Board of County Commissioners of Grand County, and the Winter Park Ranch Water and Sanitation District. Thank you for your consideration of our input and we are hopeful that our concerns will be properly addressed in the EIS. Sincerely, Michael R. Wageck Chairman Granby/SilverCreek Water & Wastewater Authority	Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River Basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cubic feet per second [cfs]) more than 80 percent (%) of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be

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		about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Another commenter asserts that: The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser basin shows otherwise. For example, the DEIS Fraser basin water budget claims that groundwater discharge amounts to approximately 42,000 acre-feet per year (AF/yr) compared to 64,500 acre-feet (AF) of surface flow out of the watershed annually. Thus, groundwater discharge is greater than 10% of the total water budget and about two-thirds of the total surface flow out of the basin.

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		As described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic systems in each of the affected watersheds during these times. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. In this annual hydrologic budget, the inputs and outputs each total approximately 400,600 AF/yr for an average year. In this table, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999). The water budget table (DEIS Table 3.2-1) does not show what the comment suggests. In stating the groundwater discharge amounts to approximately 42,000 AF/yr, the commenter confuses groundwater underflow (GWua), with groundwater discharge (GWdb). In this hydrologic budget table, groundwater underflow represents flow out of the basin below the ground surface whereas groundwater discharge is flow out of the ground surface (e.g., to streams). The comment adds 13,700 AF/yr of groundwater underflow to the amount of groundwater discharge as stream base flow (GWdb) 28,300 AF/yr, to arrive at the value of 42,000 AF/yr for groundwater discharge. Rather, this table actually indicates that average annual groundwater discharge to the stream base flow is about 28,300 AF/yr, or about 7% of the total water budget. The Moffat Project would not measurably affect groundwater discharge that supports base flow because the proposed diversions would not substantially reduce groundwater levels or recharge rates for the reasons described above.

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		The comment also reflects a misunderstanding of the purpose of providing the simple water budget table and graphic in the DEIS. This information was intended to simply illustrate the hydrologic processes in the watersheds. They were included in the DEIS to help the interested public reader to generally understand the major hydrologic components and how they interrelate. To avoid the type of confusion expressed in this comment and the possibility for others to over-interpret the meaning of the hydrologic budget values, the water budget table (DEIS Table 3.2-1) and graphic are not included in the FEIS. Although it is conceptually reasonable to expect that if groundwater levels were to decline by more than the range of natural temporal fluctuations because of the Project, the productivity of some wells could be affected. However, the magnitude of this potential effect would depend on the amount of static (non-pumping) groundwater level decline at each specific well location compared to the saturated thickness of the aquifer penetrated by the well and the distance between that well and the affected stream segment. Information provided in the DEIS shows that the Project would not cause a reduction in groundwater levels within any of the West Slope basins, except there would possibly be minor temporary declines in areas immediately next to some of the streams during the high-runoff period. Thus, compiling and presenting the information for all the existing wells is not necessary or justified for an Environmental Impact Statement (EIS)-level of analysis. Moreover even if the well information were complete and available from public sources, those data would not provide a basis for the impacts analysis suggested in the comment. Rather, impacts to well productivity could only be evaluated based on the magnitude of changes in stream flows and stream levels, and the distance between the well and the stream.

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		The groundwater flow system is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could change. The Project would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that detailed study Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about 8 inches. Groundwater levels immediately adjacent to this stream segment would drop less than 8 inches because groundwater flows toward and into the stream due to groundwater recharge in the surrounding uplands. This recharge is derived primarily from infiltration of snowmelt in the uplands above the stream and would not be affected in any way by the Project.

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		Based on comments from the U.S. Environmental Protection Agency (EPA), the Corps installed groundwater wells in the fall of 2010 to provide measurements of groundwater level elevations and adjacent stream water level elevations in the Fraser River watershed. These data demonstrate the groundwater-surface water relationships described in the DEIS exist downstream of Denver Water diversion points. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other reasonably foreseeable future actions (RFFAs). Additional groundwater data collected in the fall of 2010 was provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater, stream flow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8. ***Comment #773-13*** *(ID 4560)**:*** *Water Supply and Water quality Concerns The Authority is concerned about impacts to its physical water supply and water quality due to the proposed increased diversions from the Fraser River. The DEIS proposes an additional 18,000 Ac-Ft diversion out of the headwaters of the Fraser River upstream from the Authority's wells. The DEIS does not comment on any mitigation to offset the impact to the Authority water supply. The scoping of the DEIS is too broad to discuss specific impacts and as such fails to adequately address the intent of the NEPA process. For municipal water and wastewater providers on the Western Slope, the impact from increased diversions results in less water for drinking water purposes, and less water for treatment of*

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		wastewater. More specific comments are as follows. **Response #773-13:** Please see the responses to Comment Identifications (IDs) 4555 and 4559. This Project would not affect the availability of drinking water on the West Slope. The proposed Project would divert approximately 8,400 AF from the Fraser River Basin. ***Comment #773-12*** *(ID 4559)**:*** *Increased diversions out of the Fraser River upstream from the Authority wells can negatively impact the wells. The DEIS did not discuss the specific impact to this reach of the Fraser River. The Authority wells have a direct connection to the surface flows in the Fraser River. The flows in the Fraser directly impact the well capacity, cone of influence, static water elevations, well drawdown, storage capacity and transmissivity of the Authority wells and aquifer. The natural flow regime of the River, which has already been impacted by the historical Moffat diversions, will be altered with additional diversions. The cumulative impact has the potential to greatly impact the flow regime of the river including channel location, meanders, hydraulic grades, bank and bed load stability, sedimentation, amount and quality of adjoining wetlands and other stream mechanic characteristics. These changes can upset the fragile balance that defines the surface and groundwater regime that influences the Authority wells.* **Response #773-12:** Groundwater/Surface Water Interactions The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result

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		in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water diversion structures west of the Continental Divide. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent USGS technical report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the Williams Fork watershed where there are other Denver Water diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because these areas do not lie downstream of any Denver Water diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Moffat Project.

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		Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to the Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt into the ground surface would not be altered by the Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the Moffat Project only has the potential to slightly reduce groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow

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		causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs. A USGS technical report (Apodaca and Bails 1999) for the Fraser River Basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River basin downstream of the Denver Water diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving groundwater discharge. The groundwater level contours also indicate that recharge occurs in higher elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Streamflow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS

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		Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. Appendix H-5 in the DEIS provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cfs) more than 80% of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream

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		levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a two-year flow event would drop about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be about 1.6 feet, which is very small in comparison to the existing two-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the two-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a one-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. Comment ID 3840 asserts that: The DEIS describes groundwater recharge and discharge as “relatively minor components of the (hydrologic) systems” but the hydrologic budget for the Fraser basin shows otherwise. For example, the

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		DEIS Fraser basin water budget claims that groundwater discharge amounts to approximately 42,000 AF/yr compared to 64,500 AF of surface flow out of the watershed annually. Thus, groundwater discharge is greater than 10% of the total water budget and about two-thirds of the total surface flow out of the basin. As described in the DEIS, snowmelt runoff during the spring and early summer months causes high stream flows that dominate the hydrologic system in each watershed, whereas groundwater recharge and discharge are relatively minor components of the hydrologic systems in each of the affected watersheds during these times. DEIS Table 3.2-1 provides average annual estimates of the components of the annual hydrologic budget for the Fraser River watershed to facilitate discussion and understanding. In this annual hydrologic budget, the inputs and outputs each total approximately 400,600 AF/yr for an average year. In this table, the values for precipitation, evapotranspiration and consumptive use are the same as those provided by the USGS (Apodaca and Bails 1999). The water budget table (DEIS Table 3.2-1) does not show what the comment suggests. In stating the groundwater discharge amounts to approximately 42,000 AF per year, the commenter confuses groundwater underflow (GWua), with groundwater discharge (GWdb). In this hydrologic budget table, groundwater underflow represents flow out of the basin below the ground surface whereas groundwater discharge is flow out of the ground surface (e.g., to streams). The comment adds 13,700 AF/yr of groundwater underflow to the amount of groundwater discharge as stream baseflow (GWdb) 28,300 AF/yr, to arrive at the value of 42,000 AF/yr for groundwater discharge. Rather, this table actually indicates that average annual

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		groundwater discharge to the stream baseflow is about 28,300 AF/yr, or about 7% of the total water budget. The Moffat Project would not measurably affect groundwater discharge that supports baseflow because the proposed diversions would not substantially reduce groundwater levels or recharge rates for the reasons described above. The comment also reflects a misunderstanding of the purpose of providing the simple water budget table and graphic in the DEIS. This information was intended to simply illustrate the hydrologic processes in the watersheds. Those were included in the DEIS to help the interested public reader to generally understand the major hydrologic components and how they interrelate. To avoid the type of confusion expressed in this comment and the possibility for others to over-interpret the meaning of the hydrologic budget values, the water budget table (DEIS Table 3.2-1) and graphic were removed from the FEIS. Although it is conceptually reasonable to expect that if groundwater levels were to decline by more than the range of natural temporal fluctuations because of the Project, the productivity of some wells could be affected. However, the magnitude of this potential effect would depend on the amount of static (non-pumping) groundwater level decline at each specific well location compared to the saturated thickness of the aquifer penetrated by the well and the distance between that well and the affected stream segment. Information provided in the DEIS shows that the Project would not cause a reduction in groundwater levels within any of the West Slope basins, except there would possibly be minor temporary declines in areas immediately next to some of the streams during the high-runoff period. Thus, compiling and presenting the information for all the existing wells is not necessary or justified for an EIS-level of

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		analysis. Moreover even if the well information were complete and available from public sources, those data would not provide a basis for the impacts analysis suggested in the comment. Rather, impacts to well productivity could only be evaluated based on the magnitude of changes in stream flows and stream levels, and the distance between the well and the stream. The groundwater flow system is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels immediately adjacent to the streams could change. The Project would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water diversion points and further downstream. Hydraulic modeling results provided in the DEIS indicate that detailed Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; a drop in peak stage of about eight inches.

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		Groundwater levels immediately adjacent to this stream segment would drop less than eight inches because groundwater flows toward and into the stream due to groundwater recharge in the surrounding uplands. This recharge is derived primarily from infiltration of snowmelt in the uplands above the stream and would not be affected in any way by the Project. Based on comments from the EPA, the Corps installed groundwater wells in the fall of 2010 to provide measurements of groundwater level elevations and adjacent stream water level elevations in the Fraser River watershed. These data demonstrate the groundwater-surface water relationships described in the DEIS exist downstream of Denver Water diversion points. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other RFFAs. Additional groundwater data collected in the fall of 2010 were provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater, streamflow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8. Authority Wells Groundwater is hydraulically interconnected with the potentially affected stream segments and thus groundwater levels could decline slightly adjacent to the streams during the high-runoff months. However, the effects of the Project on alluvial groundwater levels near Granby would be small compared to the natural seasonal and year-to-year fluctuations. The

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		Project effects on groundwater levels in the Granby Authority wells would be less than the daily fluctuations in drawdown caused by pumping the wells. If the pumping of Authority Well #4 draws some stream water into the well and causes manganese levels to decrease with time during pumping, there is no reason to expect this would increase dissolved manganese and other contaminants in the well with time. As described DEIS Section 4.2, the proposed diversions may cause minor direct impacts to groundwater levels alongside the Fraser River during the high-runoff period. However, the minor drop in water levels and flows in the Fraser River would not adversely affect the characteristics of the alluvial aquifer or the Authority wells. Effects of the proposed diversions on the Fraser River flow regime are assessed in DEIS Sections 4.1 and 4.6. ***Comment #773-10*** *(ID 4558)**:*** *Most of the diversions occur during the spring runoff when flows in the Fraser reach peak of the annual hydrograph. These flushing flows naturally serve to clear sediment and maintain stream channels. Stream Channel location is critical to the balance of water tributary to alluvial wells. Stream Channels too far from the wells can impact the cone of depression. Channels too close to the wells can impact the influence from surface water to the well. If on-going particulate analysis testing shows influence from surface waters, filtration and other treatment processes will be necessary to meet provisions of the Safe Drinking Water Act.* **Response #773-10:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While

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		streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include

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		tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, Indicators of Hydrologic Alteration (IHA) was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the U.S. Forest Service (USFS). FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. The analyses of stream morphology, specifically the anticipated response of the streams to projected

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		flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #773-9*** *(ID 4557)**:*** *The tributary watershed of this reach of the Fraser River is heavily impacted by the devastation of the Pine Beetle epidemic. Sediment and particulate loading to this reach of the River will change. The dead trees will be subject to increased fire hazard. A fire in the watershed will increase erosion, pine needle and sediment loads to this reach of the Fraser. The natural flushing flows from spring runoff will be necessary to scour the added sediment load and retain the natural bed loading and stream channel regime.* **Response #773-9:** The effects as a result of pine beetle infestation alone would not impact channel morphology, however forest lost and vegetation community changes from the beetle could potentially have several impacts. Pine beetle kills could result in decreased sediment supply as dying forests decrease overhead shading resulting in increased groundcover and mid-story vegetation, therefore decreasing erosion potential. Pine beetle could also result in increased sediment supply if a large fire were to occur, fueled by the killed timber increasing erosion potential.

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		In the event of a large scale fire, sediment supply would likely significantly increase for a finite amount of time. Sediment deposition from increased erosion would be expected to occur in streams during this time. As groundcover and the forest regenerates, sediment supply would be reduced and likely return to levels near Current Condition. As revegetation occurs, sediment supply would decrease and at some point during the revegetation process sediment supply would once again drop below sediment transport capacity. When sediment transport capacity exceeds sediment supply, sediment that had been deposited as a result of the fire would begin to erode and transport downstream. The system would continue along this erosional process until it returned to its equilibrium. ***Comment #773-8*** *(ID 4556)**:*** *Alluvial Wells require functioning natural wetlands to serve as natural reservoirs and filtering mechanisms to filter and recharge the natural alluvial water supplies. The incremental and cumulative impacts of dry season and peak season flows impact the fragile balance of healthy wetlands. This project removes the natural peak hydrograph flows which can upset this balance.* **Response #773-8:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River

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		below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes.

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		Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #773-7*** *(ID 4555)**:*** *The Authority wells rely upon the natural physiological and biological processes Of the natural wetlands, geological formations, and alluvial aquifer characteristics to naturally filter Fraser River surface waters to provide safe drinking water. Currently the only post treatment required is disinfection through chlorination and the addition of a corrosion inhibitor through a polyphosphate to meet action levels for lead and copper concentrations in the distribution*

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		system. Pursuant to the Federal Safe Drinking Water Act and the Primary Drinking Water Regulations of the Colorado Water Quality Control Commission, water that is under the influence of surface water is required to provide extensive and full filtration processes. The Authority Wells rely upon this natural watershed approach to provide this filtration. The Authority is required to perform particulate analysis (PAs) to demonstrate influence from surface water. The PA test filters a known volume of raw water through a fine filter to allow examination of particles such as algae, diatoms, rotifers et al. to determine a direct link between surface water and ground water. Thus far the Authority wells have tested negative for influence from surface water. Upsetting the balance of the watershed by reduced flows can impact the relationship between groundwater and surface water for shallow alluvial wells. **Response #773-7:** Alluvial wells that have been determined to not be under the influence of surface water for Safe Drinking Water Act purposes are not necessarily groundwater. Rather the alluvium provides sufficient treatment to preclude conventional treatment. The ability of the alluvium to provide this treatment is complex and dependent on many things beyond river flows. Information provided in DEIS Sections 3.1 and 3.2 provides the reasons this Project would not cause a reduction in groundwater levels within any of the West Slope basins, except that minor temporary declines are possible in areas immediately next to some of the streams during the high-runoff period. A summary of the pertinent DEIS information follows. The groundwater flow system in the Fraser River watershed is hydraulically interconnected with the potentially affected stream segments and thus

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		groundwater levels immediately adjacent to the streams could change. However, in the lower parts of this basin groundwater flows into the Fraser River and supports the base flow. This Project would only cause minor changes to the duration of the higher stream flows downstream of the existing Denver Water diversion points during high runoff periods. At most, the additional diversions would cause only a minor change in stream levels downstream of the diversion points. The change would only occur during the months when water levels are high. There would be no effect on groundwater levels in the headwater tributaries upstream of the diversion structures or throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Immediately adjacent to the potentially affected stream segments, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. However, the maximum change in groundwater level would be less than the maximum change in stream level because groundwater flows toward the streams from the surrounding upland areas and discharges into the streams in the vicinity of the Denver Water diversion points and further downstream. Hydraulic modeling results provided in DEIS Section 3.1 and Appendix H indicate that detailed study Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions, with a drop in peak stage of about 8 inches. The effects of the Project on alluvial groundwater levels near Granby would be small compared to the natural seasonal and year–to-year fluctuations. The Project-related effects on groundwater levels in the Granby Authority wells would be less than the daily fluctuations in drawdown caused by pumping the wells.

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		Specific data and information from the DEIS and the rationale for these conclusions are further described below. Additional groundwater data collected in the fall of 2010 is provided in FEIS Section 5.4 and clarifies the groundwater-surface water relationships downstream of Denver Water diversion points. Additional stream flow analyses were used with the new groundwater data to further assess the Project-related effects on groundwater levels and stream interactions. Groundwater-Stream Interactions in the Fraser Valley The timing of the proposed diversions for the Moffat Project would not substantially affect recharge to the groundwater flow system in the West Slope watersheds. Rather the Moffat Project would result in minimal effects to recharge, and to groundwater resources overall, for the following reasons. The Moffat Project would not make any changes to the locations or the physical features of any of the existing Denver Water diversion structures west of the Continental Divide. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River Basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue area on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water diversion points. The blue area on Figure 3.4-1 constitutes a large percentage of the whole watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. The geologic map from a recent USGS Technical Report referenced in DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured

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		crystalline rocks are also exposed in many areas of the basin. Precipitation and snowmelt infiltrate though permeable soils and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the Williams Fork watershed where there are other Denver Water diversion structures. Figure 3.4-1 also shows another large area (shaded brown) in which the Proposed Action would not affect groundwater recharge rates, neither in the upland areas or along the stream channels, because these areas do not lie downstream of any Denver Water diversion points. Fundamental hydrogeologic concepts indicate substantial recharge of the groundwater flow system occurs throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the proposed Moffat Project. Unaffected stream channel segments are depicted with light blue lines on Figure 3.4-1. Along the light blue lines within the darker blue areas (above the diversion points), the rate and volume of groundwater recharge due to seepage through the bottom of stream beds would not change due to this Project at any time of year. In areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there also would not be any change in groundwater recharge rates at any time because the hydrogeologic factors controlling infiltration of precipitation and snowmelt into the ground surface would not be altered by this Project. Thus, the Project has no potential to change the groundwater recharge rates within the vast majority of the whole watershed, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork

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		River watershed. In the other parts of the Fraser River watershed directly downstream of the diversions, the proposed Moffat Project only has the potential to slightly reduce groundwater recharge rates in the relatively small areas directly beneath and immediately beside the stream channels where the diversions may reduce the extent of seasonal overbank flooding areas. These potentially affected stream channel segments within the Fraser River watershed are shown as gold lines on Figure 3.4-1. DEIS Section 4.2 describes stream flow reductions that could conceivably cause some reduction in the groundwater levels and recharge rates directly beneath the stream channels (gold lines on Figure 3.4-1) if percolation through the streambeds decrease. Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. The potential change in groundwater recharge along those stream segments (along the gold lines) would be small for reasons described in the following paragraphs. A recent USGS Technical Report (Apodaca and Bails 1999) for the Fraser River basin, which is cited in DEIS Section 4.2, shows groundwater level contour patterns that indicate hydraulic gradients, and thus groundwater flow directions, converge toward the streams in the central portion of the Fraser River Basin downstream of the Denver Water diversion points. Where water table contours show groundwater flow converging toward streams, this indicates the streams are not providing groundwater recharge, but rather the streams are receiving groundwater discharge. The groundwater level contours also indicate that recharge occurs in higher

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		elevation areas, upland of the streams. Therefore, even though the increased diversions may cause slight reductions of the stream levels, there would not be a consequent reduction in groundwater recharge within the watershed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Streamflow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas were characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes were presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, water levels and wetted areas of the stream are presented in DEIS Section 4.6. Streambed seepage rates are expected to decrease by an exceedingly small amount because the timing of the diversions would coincide with high runoff periods in wet or average years. DEIS Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown on Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River Basin. Those curves indicate that the potential changes in flow durations attributable to this Project would be minimal. As shown by the flow duration curves, flow reductions resulting from the Proposed Action would occur at

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		higher flow rates, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that stream flow changes would occur at several locations of interest. There would be little to no change in stream flow (flow change less than 1 cfs) more than 80% of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the Corps' HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. DEIS Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop about 8 inches in that reach. The HEC-RAS model results also show changes in the wetted channel width at that location would be about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre).

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		In summary, for the reasons enumerated above, the proposed diversions are expected to have negligible to minor direct impacts on groundwater levels and recharge. Declining stream levels would likely cause only very minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates would not change substantially within the West Slope watersheds. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. ***Comment #773-6*** *(ID 4554)**:*** *The cumulative impact of diverting the highest quality water high in the watershed has the direct impact in concentrating contaminants lower in the watershed. The existing proposed Moffat diversions decrease the highest quality water, while known sources of contaminants lower in the watershed remain. Examples of sources of contaminants include both point sources (Wastewater Treatment Plants) and non point sources of runoff (Urban Runoff). Wastewater plants between the Moffat Diversion intakes and the Authority wells include: i. Winter Park Water and Sanitation District ii. Grand County Water and Sanitation District iii. Winter Park Ranch Water and Sanitation District IV. Town of Fraser v. Tabernash Meadows Water and Sanitation District Wastewater treatment plant return flows of treated effluent comprise a much higher concentration of native flows when headwaters are diverted. The Fraser River during certain times of the year is becoming increasingly effluent dominated. Wastewater Treatment facilities are designed to comply with Provisions of the Clean Water Act. Those requirements include discharge limitations on key parameters such as Biochemical Oxygen*

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		Demand (BODS), Suspended solids, (SS) ammonia, pH, Chlorine, et al. These requirements do not include many emerging contaminants, endocrine disrupters, herbicides, pesticides, personal health care products, pharmaceutical products and many other volatile organic and synthetic organic chemicals. Most of these contaminants are dissolved constituents which are not taken out during the natural filtration process of water movement through the alluvial aquifer. Unlike surface water many of these dissolved constituents can remain in groundwater for long periods of time. When the dilution water is reduced through diversions, the concentrations of these contaminants increase. These increased concentrations impact drinking water and have a direct correlation with human health impacts. The addition of a disinfectant and a corrosion inhibitor are the only treatment to the Authority well water beyond the natural filtration of the wetlands and aquifer. Increased Total Organic Carbon concentrations in the Fraser River ultimately lead to increased Total Organic Carbon concentrations in the Authority's wells. TOC, when combined with chlorine, create carcinogenic precursors and regulated under CDPHE's Disinfection By-product Rule. The incremental and cumulative impacts of the Moffat diversions result in increased difficulty in complying with these drinking water regulatory requirements. Other sources of contaminants include non-point sources of agricultural runoff; urban runoff; deicing agents used for roadway maintenance, salinity, IDS, and naturally occurring iron and Manganese. All of these contaminants concentrations increase due to the cumulative and incremental diversions of the good quality upper basin water. As these contaminant concentrations increase expensive drinking water treatment process, including membranes and reverse osmosis treatment, will be required to meet provisions of the Safe Drinking Water Act. These

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		treatment processes are extremely expensive to construct and maintain. Membranes and Reverse Osmosis require very high feed pressures and are much more energy intensive then conventional treatment. **Response #773-6:** The Fraser River is not effluent dominated under any alternative. As shown in DEIS Tables 4.1-5, 4.1-6, and 4.1-7, the Fraser River is not anticipated to exceed 7.6% wastewater under any alternative. Much research is currently being conducted on the very low concentration constituents referenced. Future regulations, if any, for these constituents are unknown and evaluation regarding future regulations in the EIS cannot be performed because they are not defined. ***Comment #773-5*** *(ID 4553)**:*** *Authority Well #4 has elevated manganese concentrations that exceed EPA's Secondary Contaminant level of .05 mgt\. Continuous pump testing of Well 4 has shown that when the pump is first turned on and is pumping water from the cone of influence manganese levels are at their highest and then decrease over time as the pump continues to run. It is believed that the higher levels are indicative of water quality directly from the groundwater and cone of influence. As the well continues to pump, drawdown rates decrease and manganese levels decrease which would suggest a direct influence from Fraser River surface water. As surface water flows decrease and hydraulic gradients decrease the balance between a gaining stream and or declining stream (is groundwater adding to surface water or is surface water influencing groundwater) changes. Influence from groundwater to surface water increases because of the lower phreatic head conditions. This can impact the concentration of dissolved contaminants over*

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		time and further concentrate and increase manganese levels. **Response #773-5:** Please see the response to Comment ID 4559. ***Comment #773-4*** *(ID 4552)**:*** *Wastewater Treatment Plant Discharge Permits will become more stringent. The cumulative impact of diversions also impacts wastewater treatment plant discharges. The Colorado River Basin Salinity Control Act limits municipal wastewater IDS discharges to the Colorado River Basin to an incremental increase of400 mg/l greater than source water. Paired sampling of most plants show that treatment plant salinity concentrations in discharges exceed the 400 mg/l increase over and above source water. The Authority conveys wastewater to the Granby Sanitation District which owns and maintains a treatment facility along the Fraser River downstream from the Authority and upstream from the confluence of the Fraser and the Colorado River. These impacts to wastewater treatment plants will cause treatment plant capital and operating costs to increase in order to meet provisions of the Clean Water Act. These increased costs will directly impact Authority customers.* **Response #773-4:** The Moffat Project does not influence or impact the increase in salinity in domestic wastewater due to household inputs (i.e., detergent, soaps, and waste disposal). Impacts to Wastewater Treatment Plants (WWTPs) due to the Project would be from a potential change in discharge permits, which are most strongly affected by low flow. The proposed Project would not increase diversions during low flow periods nor would it change Denver Water's existing bypass requirements. Low flow and potential impacts to WWTPs are presented in FEIS

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		Sections 4.6.2 and 5.2. ***Comment #773-2*** *(ID 4551)**:*** *Wastewater Treatment Plant discharge limitations vary monthly and are based upon 30 day monthly averages. Colorado regulations determine permissible effluent discharge standards for wastewater treatment facilities. These standards establish water quality effluent limitations specifically based on acute and chronic low flows. The acute low flow referred to as IE3 represents the one day low flow recurring in a three year interval and is used in developing limitation based on an acute standard. The 7 day average low flow, 7E3, represents the seven day average low flow recurring in a 3 year interval, and is used in developing limitations based on a Maximum weekly average temperature standard. As natural flows decrease, effluent limitations will be more stringent through simple mass balance calculations. More stringent effluent limitation will require more extensive treatment processes and again will directly impact Authority customers.* **Response #773-2:** Evaluation of daily flows with regard to low flows has been performed for the FEIS and low flows are not anticipated to change under the Project. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #773-1*** *(ID 4550)**:*** *Increased diversions out of the Fraser River will negatively impact the Authority source of drinking water. Increased diversions will also negatively impact Authority customers through increased wastewater treatment plant costs. The DEIS fails to discuss the specific impacts to these facilities and thus does not discuss mitigation measures. The Corp of Engineers is tasked with insuring compliance with provisions of EPA and the Clean*

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		Water Act. The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the nation's water". A more thorough and specific review of these impacts will confirm that the incremental and cumulative impact of these diversions is not consistent with the goals of the Clean Water Act. **Response #773-1:** Impacts to WWTPs due to the Moffat Project would be from a potential change in discharge permits, which are most strongly affected by low flow. The proposed Project would not increase diversions during low flow periods nor would it change the Denver Water's existing bypass requirements. Low flow and potential impacts to WWTPs are presented in the FEIS Sections 4.6.2 and 5.2. ***Comment #773-3*** *(ID 4549)**:*** *Adoption of Other Comments by reference: The Authority also hereby adopts and incorporates herein by reference the comments submitted by the Winter Park Water and Sanitation District, the Town of Winter Park, the Board of County Commissioners of Grand County, and the Winter Park Ranch Water and Sanitation District. Thank you for your consideration of our input and we are hopeful that our concerns will be properly addressed in the EIS.* **Response #773-3:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to National Environmental Policy Act of 1969, as amended (NEPA).

Comment-Response Report (Jurisdictions/Municipalities Part C)

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Comment #774 Tod J. Smith, Chairman The Law Office of Tod J. Smith, on Behalf of the Eldorado Springs Planning Committee, South Boulder Creek Subcommittee P.O. Box 3103 Eldorado Springs, CO 80302	From: Tod Smith [mailto:tod@whiteingsmith.com] Sent: Wednesday, March 17, 2010 4:51 PM To: MOFFAT.EIS@usace.army.mil Subject: Comments - Moffat EIS Mr. Franklin: Attached please find the Eldorado Springs Planning Committee's comments on the Denver Water Moffat Collection System Project Draft EIS. The original is being mailed today. Sincerely, Tod J. Smith The Law Office of Tod J. Smith 1136 Pearl Street, Suite 203 Boulder, Colorado 80302 Office Phone: (303) 444-2549 Facsimile: (303) 444-2365 Cell Phone: (303) 956-1106 Confidentiality: This email message is intended only for the addressees listed above. If you have received this message in error, please delete this electronic message from your system without printing the message, saving the message, or forwarding it to anyone. Thank you for your cooperation. - Moffat EIS - Final.pdf	***Comment #774-1*** *(ID 4575)**:*** *Attached please find the Eldorado Springs Planning Committee's comments on the Denver Water Moffat Collection System Project Draft EIS. The original is being mailed today. ATTACHMENT The Eldorado Springs Planning Committee, through its South Boulder Creek Subcommittee (the "ESPC") appreciates the opportunity to review and comment on the U.S. Corps of Engineers' Moffat Collection System Project Draft Environmental Impact Statement ("EIS"). The ESPC is a volunteer organization made up of citizens of Eldorado Springs who are developing planning and zoning guidelines that will be presented to our community for consideration. Eldorado Springs is an Original Townsite within Boulder County. It is a small, densely developed residential Townsite with approximately 90 homes and 200 residents, and is the first significant residential community downstream of Gross Reservoir. South Boulder Creek runs through the center of Town, providing a community lifeline, riparian and aquatic habitat for plants, birds and fish, recreation, a place for our children to play and to learn about the stream ecosystem.* **Response #774-1:** The Corps received both the electronic and hard copies of the Colorado River Water Conservation District's comments. ***Comment #774-2*** *(ID 4574)**:*** *The Draft EIS indicates that the proposed project will have significant adverse impacts to South Boulder Creek above, through and below Eldorado Springs. Those impacts will directly affect our town and its residents, while only Denver and its water customers will benefit from an enlarged Gross Reservoir. Therefore, the mitigation strategies that Eldorado Springs Planning Committee we propose should be*

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	Attachments: ELDORADO SPRINGS PLANNING COMMITTEE c/o Tod J. Smith, Chairman South Boulder Creek Subcommittee P.O. Box 3103 Eldorado Springs, CO. 80302 March 17, 2010 SENT BY E-MAIL moffat.eis@usace.army.mil Mr. Scott Franklin Moffat EIS Project Manager Denver Regulatory Office U.S. Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, Colorado 80128 Re: Eldorado Springs Planning Committee Comments on the Denver Water Moffat Collection System Project Draft EIS Dear Mr. Franklin: The Eldorado Springs Planning Committee, through its South Boulder Creek Subcommittee (the "ESPC") appreciates the opportunity to review and comment on the U.S. Corps of Engineers' Moffat Collection System Project Draft Environmental Impact Statement ("EIS"). The ESPC is a volunteer organization made up of citizens of Eldorado Springs who are developing planning and zoning guidelines that will be presented to our community for consideration. Eldorado Springs is an Original Townsite within Boulder County. It is a small, densely developed residential Townsite with approximately 90 homes and 200 residents, and is the first significant residential community downstream of Gross Reservoir. South Boulder Creek runs through the center of Town, providing a community lifeline, riparian and aquatic habitat for plants, birds and fish, recreation, a place for our children to play and to learn about the stream ecosystem. The Draft EIS indicates that the proposed project will have significant adverse impacts to South Boulder Creek above, through and below Eldorado Springs. Those impacts will directly affect our town and its residents, while only Denver and its water customers will benefit from an enlarged Gross Reservoir. Therefore, the mitigation strategies that	*incorporated by the Corps to alleviate those impacts. Our specific comments on the Draft EIS are set out below.* **Response #774-2:** The Corps notes the comment. ***Comment #774-3*** *(ID 4573)**:*** *Comment 1: There should not be further reductions in the natural flow of South Boulder Creek The Draft EIS states that South Boulder Creek flows through Eldorado Springs will decrease by approximately 2% under all action alternatives. Flows in South Boulder Creek as it runs through Eldorado Springs have been decimated by Gross Reservoir, and municipal and irrigation diversions above the Townsite. During the late fall, winter and early spring, the entire flow of South Boulder Creek is diverted into the Community Ditch, eliminating stream flows through the Townsite. Less than 1 cfs is discharged into the Creek immediately below the Community Ditch diversion dam from the pipeline carrying Lafayette's municipal water supply to its treatment plant to the east. The Colorado Water Conservation Board has a decreed 2 cfs winter minimum stream flow right that is rarely, if ever met. Even 2 cfs is entirely insufficient to preserve the riparian habitat, environmental and aquatic needs. Spring run-off flows are significantly reduced by upstream diversions including the Community Ditch and Denver's diversions through the South Boulder Diversion Canal. South Boulder Creek cannot suffer further reductions in natural flow - even a 2% reduction - during any time of the year. Denver should not be allowed to further reduce the natural flow of South Boulder Creek by additional storage of those flows in an enlarged reservoir and increased diversions at the South Boulder Diversion Canal.*

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	Eldorado Springs Planning Committee Comments – Moffat Draft EIS 3/17/2010 Page 2 of 5 we propose should be incorporated by the Corps to alleviate those impacts. Our specific comments on the Draft EIS are set out below. **Comment 1: There should not be further reductions in the natural flow of South Boulder Creek** The Draft EIS states that South Boulder Creek flows through Eldorado Springs will decrease by approximately 2% under all action alternatives. Flows in South Boulder Creek as it runs through Eldorado Springs have been decimated by Gross Reservoir, and municipal and irrigation diversions above the Townsite. During the late fall, winter and early spring, the entire flow of South Boulder Creek is diverted into the Community Ditch, eliminating stream flows through the Townsite. Less than 1 cfs is discharged into the Creek immediately below the Community Ditch diversion dam from the pipeline carrying Lafayette's municipal water supply to its treatment plant to the east. The Colorado Water Conservation Board has a decreed 2 cfs winter minimum stream flow right that is rarely, if ever met. Even 2 cfs is entirely insufficient to preserve the riparian habitat, environmental and aquatic needs. Spring run-off flows are significantly reduced by upstream diversions including the Community Ditch and Denver's diversions through the South Boulder Diversion Canal. South Boulder Creek cannot suffer further reductions in natural flow – even a 2% reduction – during any time of the year. Denver should not be allowed to further reduce the natural flow of South Boulder Creek by additional storage of those flows in an enlarged reservoir and increased diversions at the South Boulder Diversion Canal. **Comment 2: The Inter-governmental Agreement between the Cities of Boulder and Lafayette, and the Denver Water Board ("Board") should be incorporated in the EIS to mitigate the adverse impacts to South Boulder Creek caused by the enlargement of Gross Reservoir.** The ESPC commends the Cities of Boulder and Lafayette, and the Board for their approval of the IGA designed to mitigate the aquatic impacts of an enlarged Gross Reservoir on South Boulder Creek. We support and encourage the Corps to incorporate the IGA as a means to mitigate those impacts. **Comment 3: The IGA should be adopted and incorporated into the final EIS.** The ESPC fully supports the implementation of the IGA. It establishes an aquatic mitigation plan that provides minimum stream flows throughout the year to address low flows, particularly during the fall, winter and early spring. We believe that the flows provided under the IGA will assist, but certainly will not eliminate the damage caused by the continual low flows in South Boulder Creek. The IGA as we understand it generally provides for:	**Response #774-3:** The proposed Environmental Pool would provide a minimum flow of approximately 5 to 7 cfs from Gross Dam to the confluence of South Boulder Creek. This water would not be available for diversion by water right holders below Gross Dam as it would be a delivery of water from Gross Dam to the cities of Boulder and Lafayette. Additionally, Denver Water is required by its Federal Energy Regulatory Commission (FERC) license to pass at minimum flow of 7 cfs, or the natural inflow (whichever is less) on a year-round basis from Gross Dam. ***Comment #774-4*** *(ID 4572)**:*** *Comment 2: The Inter-governmental Agreement between the Cities of Boulder and Lafayette, and the Denver Water Board ("Board") should be incorporated in the EIS to mitigate the adverse impacts to South Boulder Creek caused by the enlargement of Gross Reservoir. The ESPC commends the Cities of Boulder and Lafayette, and the Board for their approval of the IGA designed to mitigate the aquatic impacts of an enlarged Gross Reservoir on South Boulder Creek. We support and encourage the Corps to incorporate the IGA as a means to mitigate those impacts.* **Response #774-4:** The Environmental Pool is incorporated into the Conceptual Mitigation Plan (see FEIS Appendix M). ***Comment #774-5*** *(ID 4571)**:*** *Comment 3: The IGA should be adopted and incorporated into the final EIS. The ESPC fully supports the implementation of the IGA. It establishes an aquatic mitigation plan that provides minimum stream flows throughout the year to address low flows, particularly during the fall, winter and early spring. We believe that the flows provided under the IGA will assist, but certainly will not*

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	Eldorado Springs Planning Committee Comments – Moffat Draft EIS 3/17/2010 Page 3 of 5 a. A 5,000 acre-foot environmental pool in an enlarged Gross Reservoir for the storage of water rights owned primarily by Lafayette, and Boulder. b. Release from storage of that water throughout the year to meet targeted flows ranging from 2 cfs to 10 cfs. c. Targeted flow releases to be managed and marshaled down South Boulder Creek past diversions, including the Community Ditch, through Eldorado Springs, past South Boulder Road to the confluence of South Boulder Creek and Boulder Creek. d. Flows in the segment above South Boulder Road, which includes Eldorado Springs, between a low flow of 5 cfs in a dry-year during October-April to a high flow of 10 cfs in an average year during May-September. **Comment 4: The improvements and modifications required to implement the IGA must be completed <u>prior</u> to the Board being allowed to proceed with the enlargement of Gross Reservoir.** Agreements required for the modification of various structures to allow the by-pass of the minimum flows, such as the Community Ditch diversion dam, must be negotiated and in place before the Board is allowed to proceed with the enlargement. Because the IGA is proposed as the mitigation plan to address the aquatic needs in South Boulder Creek, all improvements and modifications required for its implementation must be completed before the Board is allowed to proceed with the enlargement of Gross Reservoir. We fully believe that Boulder and Lafayette will make every reasonable effort to obtain the agreements and approvals necessary to implement the IGA. However, if terms are left to negotiation after the project is permitted or construction is initiated, there is the potential that the IGA will not be implemented, and the mitigation and targeted flows required as part of the EIS mitigation plan will not be completed. *See* for example IGA at paragraph II.C. Implementation of the IGA must be mandated, not left for future negotiation or, failed negotiations. **Comment 5: The IGA's minimum flows must add to, not replace current flows.** The IGA establishes targeted minimum flows for dry and average water years. The targeted flows should not be utilized to justify reducing historical flow rates in South Boulder Creek that exceed the targets. We have not measured, but believe that as the Creek flows through Eldorado Springs during high flow periods it exceeds the targeted flows. Historical flow rates higher than the targeted flows must be maintained (with, of course, flood protection or reduced deliveries during flood events provided by the Reservoir).	*eliminate the damage caused by the continual low flows in South Boulder Creek. The IGA as we understand it generally provides for: a. A 5,000 acre-foot environmental pool in an enlarged Gross Reservoir for the storage of water rights owned primarily by Lafayette, and Boulder. b. Release from storage of that water throughout the year to meet targeted flows ranging from 2 cfs to 10 cfs. c. Targeted flow releases to be managed and marshaled down South Boulder Creek past diversions, including the Community Ditch, through Eldorado Springs, past South Boulder Road to the confluence of South Boulder Creek and Boulder Creek. d. Flows in the segment above South Boulder Road, which includes Eldorado Springs, between a low flow of 5 cfs in a dry-year during October-April to a high flow of 10 cfs in an average year during May-September.* **Response #774-5:** The purpose of the Environmental Pool (see FEIS Appendix M) is to provide a minimum stream flow in South Boulder Creek to the confluence of Boulder Creek. ***Comment #774-6*** *(ID 4570)**:*** *Comment 4: The improvements and modifications required to implement the IGA must be completed prior to the Board being allowed to proceed with the enlargement of Gross Reservoir. Agreements required for the modification of various structures to allow the by-pass of the minimum flows, such as the Community Ditch diversion dam, must be negotiated and in place before the Board is allowed to proceed with the enlargement. Because the IGA is proposed as the mitigation plan to address the aquatic needs in South Boulder Creek, all improvements and modifications required for its implementation must be completed before the Board is allowed to proceed with the enlargement of Gross Reservoir. We fully*

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	Eldorado Springs Planning Committee Comments – Moffat Draft EIS 3/17/2010 Page 4 of 5 **Comment 6: Prior to proceeding with the project, there should be confirmation that the water the parties to the IGA intend to store and use to enhance flows in Boulder Creek will be available for storage in the environmental pool.** We understand that the water rights the IGA participants propose to store in the environmental pool will need to be exchanged up South Boulder Creek. The participants will file applications with the water court for approval of those exchanges, which will have junior priority dates. An analysis of the exchange capacity available to junior exchanges should be made prior to the project proceeding. And, exchange applications should be filed before the project proceeds. Additionally, the IGA states that Boulder will use some of its Colorado Big Thompson ("CBT") units as a source of water for the environmental pool. It is our understanding that the Northern Colorado Water Conservancy District takes the position that CBT water cannot be used to provide direct or incidental benefits outside the District. The parties should confirm before the project proceeds that CBT water can be stored in the environmental pool before it is released for minimum stream flows and subsequent use within the District. **Comment 7: The Board must be required to submit and implement an acceptable maintenance and repair plan for the South Boulder Diversion Canal** The South Boulder Diversion Canal and pipeline runs from its point of diversion on South Boulder Creek in a southeasterly direction above Eldorado Springs. The Board must be required to adopt an acceptable maintenance plan that assures that the operation and maintenance of the pipeline and canal will not degrade the surrounding lands. Releases of water during operation and maintenance should be done in a manner that does not cause erosion and the degradation of gulches and hiking trails, on either public or private land, in the area. **Comment 8: The Board should contribute to the minimum stream flows provided under the IGA.** We recognize that the IGA is a negotiated agreement among the three parties. It seems unfair, however, that the project beneficiary does not provide any water for the environmental pool. Perhaps the Board should be required to make up any annual shortages in filling the environmental pool caused by a lack of available water or limited exchange opportunities. This would assure full implementation of the mitigation measures every year, and the Board would thereby assist in alleviating the adverse impacts caused by its project within Boulder County including Eldorado Springs, the City of Boulder and the City of Lafayette.	*believe that Boulder and Lafayette will make every reasonable effort to obtain the agreements and approvals necessary to implement the IGA. However, if terms are left to negotiation after the project is permitted or construction is initiated, there is the potential that the IGA will not be implemented, and the mitigation and targeted flows required as part of the EIS mitigation plan will not be completed. See for example IGA at paragraph II.C. Implementation of the IGA must be mandated, not left for future negotiation or, failed negotiations.* **Response #774-6:** The Corps anticipates Boulder and Lafayette meeting their obligation to improve diversion facilities as needed in order for the water to be transported to the confluence of Boulder Creek. ***Comment #774-7*** *(ID 4569)**:*** *Comment 5: The IGA's minimum flows must add to, not replace current flows. The IGA establishes targeted minimum flows for dry and average water years. The targeted flows should not be utilized to justify reducing historical flow rates in South Boulder Creek that exceed the targets. We have not measured, but believe that as the Creek flows through Eldorado Springs during high flow periods it exceeds the targeted flows. Historical flow rates higher than the targeted flows must be maintained (with, of course, flood protection or reduced deliveries during flood events provided by the Reservoir).* **Response #774-7:** Denver Water is required by its FERC license to pass at minimum flow of 7 cfs, or the natural inflow (whichever is less) on a year-round basis from Gross Dam. Water releases from the Environmental Pool would be managed by the cities of Lafayette and Boulder and would be in addition to the minimum

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	Eldorado Springs Planning Committee Comments – Moffat Draft EIS 3/17/2010 Page 5 of 5 **Comment 9: The Board must be required to submit and implement a riparian corridor improvement and protection plan to mitigate riparian and aquatic habitat damage, including cleanup and natural re-grading, re-planting anderosion control measures within the Eldorado Springs Townsite.** **Comment 10: The Eldorado Springs Planning Committee supports the comments and efforts by the City of Boulder, City of Lafayette, and Boulder County to assure that the impacts of the Board's project are mitigated.** Again, we applaud the IGA participants for their agreement and efforts to provide protection for and enhanced flows in South Boulder Creek. Our comments and recommendations are meant to assure that the conditions necessary to fulfill the IGA's goals and purposes are complete before the Board can proceed with the enlargement of Gross Reservoir. **Conclusion:** Thank you for this opportunity to comment. The Eldorado Springs Planning Committee, through its South Boulder Creek Subcommittee looks forward to working with the Corps, the Denver Water Board, the Cities of Boulder and Lafayette, and Boulder County to preserve, protect and enhance the flows and habitat in South Boulder Creek. Sincerely, Tod J. Smith, Chairman ESPC South Boulder Creek Subcommittee	bypass requirements Denver Water currently has in its FERC license. ***Comment #774-8*** *(ID 4568)**:*** *Comment 6: Prior to proceeding with the project, there should be confirmation that the water the parties to the IGA intend to store and use to enhance flows in Boulder Creek will be available for storage in the environmental pool. We understand that the water rights the IGA participants propose to store in the environmental pool will need to be exchanged up South Boulder Creek. The participants will file applications with the water court for approval of those exchanges, which will have junior priority dates. An analysis of the exchange capacity available to junior exchanges should be made prior to the project proceeding. And, exchange applications should be filed before the project proceeds. Additionally, the IGA states that Boulder will use some of its Colorado-Big Thompson ("CBT") units as a source of water for the environmental pool. It is our understanding that the Northern Colorado Water Conservancy District takes the position that CBT water cannot be used to provide direct or incidental benefits outside the District. The parties should confirm before the project proceeds that CBT water can be stored in the environmental pool before it is released for minimum stream flows and subsequent use within the District.* **Response #774-8:** The Corps relies on administration and enforcement of the State water laws to ensure downstream senior rights are protected. A Section 404 Permit would not impose conditions on the operation of the Project that are within the jurisdiction of Colorado Water Law. The Corps defers to the State to resolve water law issues. The Corps' analysis for the DEIS is based on diversions under Denver Water's existing decrees. When evaluating a permit application, the

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		Corps' regulations provide: "The dispute over property ownership will not be a factor in the Corps public interest decision" 33 Code of Federal Regulations (CFR) Part 320.4(g). Whether water rights or other property rights need to be obtained, utilized, expanded, or managed differently in order to fulfill the basic purpose of the proposed action does not preclude the Corps from permitting an otherwise practicable alternative (40 CFR Part 230.10). The Corps may issue a Section 404 Permit even if other Federal, State, or local authorizations have not been obtained before the applicant has applied for a permit. ***Comment #774-9*** *(ID 4567)**:*** *Comment 7: The Board must be required to submit and implement an acceptable maintenance and repair plan for the South Boulder Diversion Canal The South Boulder Diversion Canal and pipeline runs from its point of diversion on South Boulder Creek in a southeasterly direction above Eldorado Springs. The Board must be required to adopt an acceptable maintenance plan that assures that the operation and maintenance of the pipeline and canal will not degrade the surrounding lands. Releases of water during operation and maintenance should be done in a manner that does not cause erosion and the degradation of gulches and hiking trails, on either public or private land, in the area.* **Response #774-9:** The entire South Boulder Canal consists of lined canals or pipe and Denver Water is not aware of any location where existing operations impact other resources. ***Comment #774-10*** *(ID 4566)**:*** *Comment 8: The Board should contribute to the minimum stream flows provided under the IGA. We recognize that the IGA is a negotiated agreement*

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		among the three parties. It seems unfair, however, that the project beneficiary does not provide any water for the environmental pool. Perhaps the Board should be required to make up any annual shortages in filling the environmental pool caused by a lack of available water or limited exchange opportunities. This would assure full implementation of the mitigation measures every year, and the Board would thereby assist in alleviating the adverse impacts caused by its project within Boulder County including Eldorado Springs, the City of Boulder and the City of Lafayette. **Response #774-10:** The Corps notes the comment. ***Comment #774-11*** *(ID 4565)**:*** *Comment 9: The Board must be required to submit and implement a riparian corridor improvement and protection plan to mitigate riparian and aquatic habitat damage, including cleanup and natural re-grading, replanting and erosion control measures within the Eldorado Springs Townsite.* **Response #774-11:** The EIS did not identify any impacts to the riparian corridor within the Eldorado Springs Town Site as a result of the proposed Moffat Project. ***Comment #774-12*** *(ID 4564)**:*** *Comment 10: The Eldorado Springs Planning Committee supports the comments and efforts by the City of Boulder, City of Lafayette, and Boulder County to assure that the impacts of the Board's project are mitigated. Again, we applaud the IGA participants for their agreement and efforts to provide protection for and enhanced flows in South Boulder Creek. Our comments and recommendations are meant to assure that the conditions necessary to fulfill the IGA's goals and*

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		purposes are complete before the Board can proceed with the enlargement of Gross Reservoir. **Response #774-12:** The Corps notes the comment. ***Comment #774-13*** *(ID 4563)**:*** *Thank you for this opportunity to comment. The Eldorado Springs Planning Committee, through its South Boulder Creek Subcommittee looks forward to working with the Corps, the Denver Water Board, the Cities of Boulder and Lafayette, and Boulder County to preserve, protect and enhance the flows and habitat in South Boulder Creek.* **Response #774-13:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

Comment-Response Report (Jurisdictions/Municipalities Part C)

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Comment #776 Raymond P. Merry, REHS, Director Eagle County Department of Environmental Health 500 Broadway, P.O. Box 179 Eagle, CO 81631	From: Ray Merry [mailto:Ray.Merry@eaglecounty.us] Sent: Wednesday, March 17, 2010 2:30 PM To: MOFFAT.EIS@usace.army.mil Cc: #Commissioners; Bryan Treu; qqwater@nwc.cog.co.us Subject: Eagle County's comments on the Moffat Collection System DEIS Please find attached our comment letter. Thank you. Raymond P. Merry, REHS, Director Environmental Health Department Eagle County Government P.O. Box 179 Eagle, CO 81631 970-328-8757 fax 970-328-8788 ray.merry@eaglecounty.us P Thanks for not printing electronic media - 2010.03.14 Eagle County Moffat Collection System DEIS Comments.PDF	***Comment #776-8*** *(ID 4596)**:*** *Eagle County would like to offer the following comments, concerns and issues regarding the Moffat Collection System Draft Environmental Impact Statement (DEIS). As you know, the Colorado River traverses Eagle County from Red Gorge (south and downstream of Kremmling) to the mouth of Glenwood Canyon Gust west of Dotsero). The Colorado River main stem through Eagle County is a very important recreational and cultural resource used by local as well as visiting anglers, boaters and sight-seers. We are concerned that the impacts associated with 18,000 acre feet of additional diversions through the Moffat System, when considered cumulatively with other projects undergoing NEPA review, may cause long-term, unanticipated, socioeconomic impacts, especially since the scope of the OBIS does not go beyond the confluence with the Blue River and did not consider the impacts cumulatively with the proposed Windy Gap Finning Project, whose scope ended at the Kremmling stream gage.* **Response #776-8:** Please see the responses to Comment ID 4592. The 18,000 AF/yr of new firm yield under the Proposed Action comes from increased diversions through the Gumlick Tunnel, Moffat Tunnel, and Roberts Tunnel, as well as additional South Boulder Creek and South Platte River diversions. Under the No Action Alternative it is not possible to meet an additional 18,000 AF/yr of demand. Under the No Action Alternative, Denver Water must deplete the Strategic Water Reserve and shortages would be incurred in meeting both treated and raw water customer demands in dry years. The No Action Alternative depletes Denver Water's storage by approximately 57,000 AF more than the Proposed Action during the critical period. Because the

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	Attachments: DEPARTMENT OF ENVIRONMENTAL HEALTH (970) 328-8755 FAX: (970) 328-8788 TOLL FREE: 800-225-6136 www.eaglecounty.us EAGLE COUNTY RAYMOND P. MERRY, REHS Director March 14, 2010 **Mr. Scott Franklin** U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 Sent via e-mail to: moffat.cis@usace.army.mil Re: Moffat Collection System Project (NOW-2002080762 DLN) Dear Mr. Franklin, Eagle County would like to offer the following comments, concerns and issues regarding the Moffat Collection System Draft Environmental Impact Statement (DEIS). As you know, the Colorado River traverses Eagle County from Red Gorge (south and downstream of Kremmling) to the mouth of Glenwood Canyon (just west of Dotsero). The Colorado River main stem through Eagle County is a very important recreational and cultural resource used by local as well as visiting anglers, boaters and sight-seers. We are concerned that the impacts associated with 18,000 acre feet of additional diversions through the Moffat System, when considered cumulatively with other projects undergoing NEPA review, may cause long-term, unanticipated, socioeconomic impacts, especially since the scope of the DEIS does not go beyond the confluence with the Blue River and did not consider the impacts cumulatively with the proposed Windy Gap Firming Project, whose scope ended at the Kremmling stream gage. We feel that the DEIS is premature due to number of factors and that the benefits of additional conservation measures implemented by Denver Water in the meantime would allow time to find a global solution to the benefit of all Coloradans, especially since their conservation measures are estimated to result in "freeing up" an additional 16,000 acre feet of water. In 2005, the Colorado Legislature passed House Bill 1177 which was referred to as the "Water for the 21st Century Act". This legislation lead to the formation of Technical Roundtables to foster cooperation among water suppliers and citizens in every water basin to examine and implement options to fill the gap between ongoing water planning and future water needs. The basin roundtables throughout Colorado are tasked to identify consumptive and non-consumptive water needs within their respective basin. It was the vision of the Colorado Legislature that the roundtables would be the forum to globally 500 Broadway, P.O. Box 179, Eagle, Colorado 81631-0179	additional 18,000 AF/yr of demand cannot be fully met throughout the study period under the No Action Alternative, the sum of the differences in flows between the No Action Alternative and Full Use of the Existing System are less than 18,000 AF/yr. Average annual additional diversions from each basin under the Proposed Action compared to Full Use of the Existing System would be as follows: • Williams Fork River: 1,900 AF/yr (Gumlick Tunnel) • Fraser River Basin: 8,400 AF/yr (Fraser River diversion through Moffat Tunnel) • Blue River Basin: 4,800 AF/yr (Roberts Tunnel) • South Platte River Basin: 2,400 AF/yr (direct diversions and exchanges to Conduit 20) • South Boulder Creek: 1,200 AF/yr • Total: 18,700 AF/yr Total additional diversions under the Proposed Action exceed 18,000 AF/yr due to miscellaneous losses in Denver Water's system including conveyance and evaporation. The sum of the differences in flows between the Proposed Action and No Action scenarios for the Fraser, Williams Fork and Blue river basins (2,600 AF) does not equal the total difference in flow between the Proposed Action and No Action scenarios for the Colorado River downstream of the confluence with the Blue River (2,300 AF), because of differences in flow caused by Windy Gap Project diversions from the Colorado River. As described in DEIS Section 4.1.1.2 under the subheading Colorado River, the reduction in flow at the mouth of the Fraser River may be reduced below the Windy

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	March 14, 2010 Mr. Scott Franklin Page 2 Re: Moffat Collection System DIES evaluate water projects prior to permitting to assure the project could be sustained without serious impacts. We believe the Moffat Collection System Project should be brought to the Colorado Basin Roundtable for a more broad evaluation of impacts and mitigation strategies that extend beyond the scope of the DEIS. In 2006, the Bureau of Land Management (BLM) identified many segments of the Colorado River as eligible for protection under the Wild and Scenic Rivers Act and as such, a Stakeholders Group consisting of both east and west slope interests has developed an alternative management plan for inclusion in the NEPA review as an alternative to Wild and Scenic designation management. The DEIS must take this into consideration in order for the Stakeholder Group's alternative to be an effective management strategy for protection of the outstandingly remarkable values identified by the BLM. In 2007, Eagle County applied to the Colorado Water Conservation Board (CWCB) for a minimum instream flow to be placed on the segment of the Colorado River that flows through Eagle County. This request is currently being considered by the CWCB for an instream flow appropriation in 2011. We understand that this junior right would not need to be taken into consideration within the scope of the DEIS but thought it would be useful to convey our desire to eventually develop a Stream Management Plan for the Colorado River in Eagle County. This is another example of why it is important to evaluate cumulative impacts beyond points that terminate in Grand County. To drive this point home even further, Eagle County is very concerned that this DEIS and Windy Gap both assume that impacts downstream of Grand County on the Colorado River will be mitigated due to Xcel Energy's senior water right associated with the Shoshone hydroelectric plant always being exercised. We believe that this is a fatal flaw in the DEIS. The Shoshone hydroelectric plant is aging and it would be naive for any water user along the Colorado River to assume certainty of the existing water right. The final EIS should consider this fact and require that if the plant were to operate differently in the future, the EIS should be reopened to consider any new impacts that might be caused if this call were not in place. The uncertainty of the senior Shoshone water right has additional implications as it relates to yet another DEIS being prepared which addresses water quantities and sources needed to protect the endangered fish species within a 15 mile reach of the lower Colorado River. In August 2009, when the Shoshone hydroelectric plant was under repair, the call was not on. Simultaneously, a group that declares excess water available in Green Mountain Reservoir had yet to declare available water from that supply resulting in all of the water for the endangered species coming from Ruedi Reservoir. This unfortunate set of circumstances in August of 2009 made fishing on the gold metal Frying Pan River virtually impossible and down right dangerous. We are consulting with	Gap diversion if the Windy Gap Project is operating below its full capacity under the Full Use of the Existing System scenario, or if it is at capacity and bypassing a smaller amount than the reduction in inflow from the Fraser River basin. Because Denver Water's Moffat Collection System water rights are senior to Windy Gap water rights, Denver Water's diversions under the Proposed Action could reduce the amount of water available for diversion at Windy Gap. In these situations, Denver Water's additional diversions would result in a reduction in Windy Gap diversions. There is a 300 AF annual reduction in Windy Gap diversions between the Proposed Action and the No Action Alternative. As shown in Table H-7.1 the sum of the difference between the Proposed Action and No Action Alternative for the Moffat Tunnel is 7,980 AF which does equal the difference for South Boulder Creek at the Pinecliffe gage (the augmented stream). The text in the Executive Summary was corrected as follows: Average annual flows in South Boulder Creek at the Pinecliffe gage (above Gross Reservoir) would increase by about 2,300 AF (2%) under the No Action Alternative, 10,300 AF (9%) under the Proposed Action, and between 9,200 AF and 10,100 AF (8 to 9%) for the other action alternatives. Flows in the Williams Fork below Steelman Creek would decrease by 1,910 AF/yr under the Proposed Action compared to Full Use of the Existing System, but flows downstream of Williams Fork Reservoir would decrease by only 1,700 AF/yr due to differences in evaporative losses and differences in contents in Williams Fork Reservoir at the end of the study period. The Moffat Project EIS considered the cumulative effects of RFFAs including the Windy Gap Firming Project (WGFP). PACSM incorporates the WGFP, therefore, flows in the Colorado River under the

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	March 14, 2010 Mr. Scott Franklin Page 3 Re: Moffat Collection System DEIS the Bureau of Reclamation to see how this economically devastating situation can be avoided in the future, with or without other projects in operation. In summary, Eagle County believes that the Moffat Collection System DEIS must be reviewed cumulatively with all other activities and projects currently in the planning stages. We believe we are at a critical juncture in Colorado water history which requires that we take the time to more thoroughly evaluate all of the water projects together in order to assure that we've struck the most appropriate balance which meets the needs of all beneficial uses of our finite water resources. Sincerely, Raymond P. Merry, REHS Director cc: Eagle County Board of County Commissioners Bryan Treu, Eagle County Attorney Keith Montag, Eagle County Manager	Proposed Action also reflect additional Windy Gap diversions that would occur under the WGFP. The cumulative effects analysis for both EISs considered the same RFFAs. Per the direction of the lead Federal agencies, hydrologic data were shared so that the model simulations of the Moffat Project and WGFP were consistent and in appropriate detail for each EIS. The coordination of the hydrologic effects assessments for the Moffat Project and the WGFP is summarized in DEIS Section 5.3.1. ***Comment #776-5*** *(ID 4595)**:*** *We feel that the DEIS is premature due to number of factors and that the benefits of additional conservation measures implemented by Denver Water in the meantime would allow time to find a global solution to the benefit of all Coloradans, especially since their conservation measures are estimated to result in "freeing up" an additional 16,000 acre feet of water.* **Response #776-5:** A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. ***Comment #776-7*** *(ID 4594)**:*** *In 2005, the Colorado Legislature passed House Bill 1177 which was referred to as the "Water for the 21st Century Act". This legislation lead to the formation of Technical Roundtables to foster cooperation among water suppliers and citizens in every water basin to examine and implement options to fill the gap between ongoing water planning and future water needs. The basin roundtables throughout Colorado are tasked to identify consumptive and non-consumptive water needs within their respective basin. It was the vision of the Colorado Legislature that the roundtables would be the forum to globally evaluate water projects prior to*

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		permitting to assure the project could be sustained without serious impacts. We believe the Moffat Collection System Project should be brought to the Colorado Basin Roundtable for a more broad evaluation of impacts and mitigation strategies that extend beyond the scope of the DEIS. **Response #776-7:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #776-4*** *(ID 4593)**:*** *In 2006, the Bureau of Land Management (BLM) identified many segments of the Colorado River as eligible for protection under the Wild and Scenic Rivers Act and as such, a Stakeholders Group consisting of both east and west slope interests has developed an alternative management plan for inclusion in the NEPA review as an alternative to Wild and Scenic designation management. The DEIS must take this into consideration in order for the Stakeholder Group's alternative to be an effective management strategy for protection of the outstandingly remarkable values identified by the BLM.* **Response #776-4:** The most recent and updated version of the Upper Colorado River Wild and Scenic Stakeholder Group Management Plan, dated January 2012, was reviewed and included as a consulted resource in the FEIS. In 2006, the Kremmling and Glenwood Springs field offices of the Bureau of Land Management (BLM) began the eligibility phase of a Wild and Scenic Rivers evaluation as part of their Resource Management Plan (RMP) revision process. The Wild and Scenic Rivers study process is composed of two

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		main components: the eligibility phase and the suitability phase. The eligibility phase involves identifying eligible rivers and stream segments and determining a tentative classification (i.e., Wild, Scenic, or Recreational). To be eligible for designation, a river must be free flowing and contain at least one Outstandingly Remarkable Value (ORV) that is scenic, recreational, geological, fish-related, wildlife-related, historic, cultural, botanical, hydrological, paleontological, or scientific. Upon conclusion of the eligibility phase, the BLM prepared a Wild and Scenic Eligibility Report that identified five river segments within the Moffat Project EIS study area (portions of the Colorado and the Blue rivers) that were eligible for inclusion in the National Wild and Scenic Rivers System (NWSRS) (BLM 2007). The Wild and Scenic Suitability Report followed in April 2010. In the report, BLM states: "The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the NWSRS by considering tradeoffs between corridor development and river protection." Those segments of the Colorado River between Kremmling and Glenwood Springs were determined to be eligible. The Kremmling and Glenwood Springs field offices of the BLM addressed this issue in separate Draft RMPs/EISs that were released in 2011. The preferred alternative in both RMPs includes a determination that much of the Colorado River between Kremmling and Glenwood Springs is suitable for inclusion in the Wild and Scenic Rivers Act. A variation of the preferred alternative in both field offices would defer designation by adopting and implementing the Stakeholder Group Management Plan. If monitoring indicates that the Stakeholder Group Management Plan was not providing an adequate level of protection, BLM would initiate a process to evaluate suitability at a future date.

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		The recreation analysis in the EIS did evaluate effects of the Project alternatives on the Colorado River below Kremmling (see DEIS Section 4.13.1.2). The Corps coordinated with the BLM regarding the Wild and Scenic River designation process throughout the NEPA process. However, the Corps does not use its authorities to protect those segments under the BLM study for determination in a greater capacity than it does all waterways under its jurisdiction. The Corps' direct and cumulative impact analysis shows that minor impacts would result from implementation of the action alternatives. These results were then interpreted to find that the alternatives would likely not affect the suitability of the eligible segments for inclusion in the NWSRS. This conclusion was added to the FEIS. ***Comment #776-3*** *(ID 4592)**:*** *In 2007, Eagle County applied to the Colorado Water Conservation Board (CWCB) for a minimum instream flow to be placed on the segment of the Colorado River that flows through Eagle County. This request is currently being considered by the CWCB for an instream flow appropriation in 2011. We understand that this junior right would not need to be taken into consideration within the scope of the DEIS but thought it would be useful to convey our desire to eventually develop a Stream Management Plan for the Colorado River in Eagle County. This is another example of why it is important to evaluate cumulative impacts beyond points that terrminate in Grand County.* **Response #776-3:** The study area for the Moffat Project EIS extends downstream to the USGS gage below Kremmling. The downstream extent of the study area was initially based on the location where average monthly flow changes under the action alternatives would be less than 10% compared to Full Use of the

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		Existing System. The exception to the downstream extent includes the evaluation of recreation and special status species in the 15-Mile Reach. Resource evaluations were conducted to determine impacts at that location and assess the validity of the downstream extent of the study area. Results of the resource evaluations indicate effects due to the Moffat Project would be negligible to minor along the Colorado River at the Kremmling gage, and would continue to diminish downstream with tributary inflows. Therefore, extension of the study area further downstream is not warranted based on the results of the resource evaluations. The resource evaluations were relied on to justify the criteria used to define the downstream extent of the study area. The study area was re-evaluated in the FEIS on a resource by resource basis to determine whether extension of the area was warranted based on the total environmental effects of the Moffat Project in combination with other RFFAs. The proposed Moffat Project would not affect low flows when minimum instream flows are an issue because there would be no additional diversions in dry years due to the Moffat Project. In dry years and late in the summer, Denver Water already diverts the maximum amount physically and legally available under their existing water rights and infrastructure without additional storage in their system, in which case, there would be no further reduction in low flows due to the proposed Moffat Project. ***Comment #776-2*** *(ID 4591)**:*** *To drive this point home even further, Eagle County is very concerned that this DEIS and Windy Gap both assume that impacts downstream of Grand County on the Colorado River will be mitigated due to Xcel Energy's senior water right associated with the Shoshone hydroelectric plant always being exercised. We believe that this is a fatal flaw in the*

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		DEIS. The Shoshone hydroelectric plant is aging and it would be naive for any water user along the Colorado River to assume certainty of the existing water right. The final EIS should consider this fact and require that if the plant were to operate differently in the future, the EIS should be reopened to consider any new impacts that might be caused if this call were not in place. **Response #776-2:** The Shoshone Agreement does not provide additional water to the Moffat Collection System since available storage capacity in Gross Reservoir would not be a limiting factor in dry years when the Shoshone Call reduction would be invoked and Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat Collection System. It is highly unlikely that the Shoshone Agreement would affect stream flows in a manner that translate into additional shortages in Grand and Summit counties in any given or subsequent year for the following reasons: (1) The 2006 Shoshone Agreement does not increase the supply to the Moffat System because Denver Water retains enough water in Williams Fork Reservoir to exchange against out-of-priority diversions in the Moffat System. Therefore, there would be no change in stream flows in the Fraser River basin due to this agreement. (2) Any additional exchanges from Williams Fork Reservoir to Dillon Reservoir and Roberts Tunnel would occur when the Shoshone Call is on and calling out all junior upstream water rights, including Roberts Tunnel and Dillon Reservoir. During this time any diversions at Dillon Reservoir would be fully replaced, resulting in no effect on stream flows below the point of replacement. (3) If the Shoshone Call reduction results in additional storage at reservoirs such as Dillon, Green Mountain, Williams Fork, and Wolford

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		Mountain, the subsequent demand for water under those facilities' respective water rights is reduced. (4) Upstream junior in-basin water rights would benefit when the Shoshone Call is reduced because they could divert and/or Green Mountain and Wolford Mountain reservoirs gain water supplies, which are used for West Slope purposes. (5) Shortages in Summit County are typically the result of physical water shortages and minimum in-stream flows upstream of Dillon Reservoir, as opposed to Denver Water's operations. See revisions to DEIS Section 5.3.1 under the subheading Relaxation of Xcel Energy's Shoshone Call. Additionally, the Corps evaluates reasonable and foreseeable actions in FEIS Section 4.6.1. At this time, the Corps does not have a compelling reason to believe the existing Shoshone water right would change. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Comment #776-6*** *(ID 4590)**:*** *The uncertainty of the senior Shoshone water right has additional implications as it relates to yet another DEIS being prepared which addresses water quantities and sources needed to protect the endangered fish species within a 15 mile reach of the lower Colorado River. In August 2009, when the Shoshone hydroelectric plant was under repair, the call was not on. Simultaneously, a group that declares excess water available in Green Mountain Reservoir had yet to declare available water from that supply resulting in all of the water for the endangered species coming from Ruedi Reservoir. This unfortunate set of circumstances in August of2009 made fishing on the gold metal Frying Pan River virtually impossible and down right dangerous. We are consulting with the Bureau of Reclamation to*

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		see how this economically devastating situation can be avoided in the future, with or without other projects in operation. **Response #776-6:** Ruedi Reservoir is operated by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and is independent of the proposed Moffat Project. Comments on operational issues related to Ruedi Reservoir should be directed to the Reclamation. Furthermore, the Moffat Project would not affect the operational status of the Shoshone Power Plant or Ruedi Reservoir. The Colorado River Cooperative Agreement (CRCA), which is discussed in FEIS Section 4.3.1, describes a long-term agreement for water users to release water in the event the Shoshone Power Plant is not operating has it has historically. Neither the Corps nor Denver Water is party to the group that makes a declaration of surplus water in Green Mountain Reservoir. ***Comment #776-1*** *(ID 4589)**:*** *In summary, Eagle County believes that the Moffat Collection System DEIS must be reviewed cumulatively with all other activities and projects currently in the planning stages. We believe we are at a critical juncture in Colorado water history which requires that we take the time to more thoroughly evaluate all of the water projects together in order to assure that we've struck the most appropriate balance which meets the needs of all beneficial uses of our finite water resources.* **Response #776-1:** The EIS describes the potential cumulative effects that would result from the Moffat Project combined with other projects and activities based on NEPA and Section 404(b)(1) criteria. The regulations for

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		implementing NEPA define cumulative impacts as the impact on the environment which results from the incremental impact of the action when added to other past, present, and RFFAs and regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). This regulation refers only to the cumulative impact of direct and indirect effects of the Proposed Action and its alternatives when added to the aggregate effects of past, present, and RFFAs. The Section 404 regulations state that "cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems" (40 CFR 230.11[g][1]). The cumulative effects analysis for the Moffat Project evaluated past and present actions that continue to influence existing environmental conditions. The cumulative effects analysis also included RFFAs that, when combined with one of the Project alternatives, result in a cumulative effect on the environment. For purposes of organization of the EIS cumulative effects were evaluated in two timeframes: (1) past or ongoing present actions and (2) future actions. Each of these two timeframes includes a discussion of water-based or land-based actions.

Comment-Response Report (Jurisdictions/Municipalities Part C)

Comment Information	Comment	Comments and Responses
Comment #779 Ben Doyle, Assistant Boulder County Attorney Boulder County Board of County Commissioners P.O. Box 471 Boulder, CO 80306 and Cindy Domenico, Chair Boulder County Board of County Commissioners P.O. Box 471 Boulder, CO 80306 and Ben Pearlman, Vice Chair Boulder County Board of County Commissioners P.O. Box 471 Boulder, CO 80306 and Will Toor, Commissioner Boulder County Board of County Commissioners P.O. Box 471 Boulder, CO 80306	From: Doyle, Ben [mailto:bdoyle@bouldercounty.org] Sent: Wednesday, March 17, 2010 4:47 PM To: MOFFAT.EIS@usace.army.mil; moffatproject@denverwater.org Cc: Domenico, Cindy; Pearlman, Ben; Toor, Will; Krezek, Michelle; Hoyt, Larry; Hughes, David; Case, Dale; Fogg, Peter; Stewart, Ron; Ricklefs, Chad; Gerstle, George; feedback@ios.doi.gov; MountainPrairie@fws.gov; Lois.Witte@usda.gov; claire@clairelevy.org; dan.gibbs.senate@state.co.us; odpicken@cdphe.state.co.us; lawgreen@earthlink.net; brautigamj@bouldercolorado.gov; garyk@cityoflafayette.com; chief@rockymountainfire.org; [redacted] CCCFPD@aol.com; [redacted] puma@magnoliaroad.net; bmiller@westernresources.org; dbeckwith@westernresources.org Subject: Boulder County Comments on the Moffat Collection System Draft EIS and Draft FERC License Amendment Application Please find attached Boulder County's comments on the Draft Environmental Impact Statement and Draft FERC License Amendment Application for the Moffat Collection System Project. Please let me know if the attachment doesn't come through or if you have any other questions. Boulder County appreciates the chance to provide input on the project. Very truly yours, Ben Doyle Assistant Boulder County Attorney bdoyle@bouldercounty.org (303) 441-3854 - Boulder County comments on Moffat Collection System Draft EIS & Draft FERC application (17 Mar 2010).pdf	***Comment #779-101*** *(ID 5094)**:*** *Boulder County has reviewed the Draft EIS and Draft FERC License Amendment Application associated with the Moffat Collection System Project ("the Draft documents") and has concluded that the analysis presented in the Draft documents is inadequate. As further detailed in the attached numbered comments, the Draft documents lack sufficient information to properly evaluate the purpose and need for the project, the best alternatives to address that need, the impacts of the preferred alternative, and the appropriate mitigation for those impacts. Consequently, Boulder County would oppose the issuance of any federal permits until such time as these deficiencies are rectified. The purpose of the National Environmental Policy Act ("NEPA") is to generate information that leads to a better decision on whether projects like this should be federally permitted. NEPA requires federal agencies use all practicable means to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon that environment to the fullest extent possible. Based on the data presented so far, it does not appear that the best available scientific, empirical, and contemporary data supports the Preferred Alternative, the near tripling in size of Gross Reservoir. The Preferred Alternative concentrates nearly all the negative impacts in Grand County and Boulder County – none of whose residents will benefit from the project as Denver Water customers. Boulder County's comments echo the concerns of many other affected parties. Boulder County reviewed preliminary drafts of comments by Coal Creek Canyon and other county residents from the area surrounding Gross Reservoir, Grand County, Western Resource Advocates, Trout Unlimited, the City of Boulder, and others. County staff also met with U.S. Forest Service to hear its concerns about the Draft documents. In general,*

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	Attachments: Boulder County **Board of County Commissioners** March 17, 2010 ***Via U.S. Mail and Electronic Mail or E-filing*** Mr. Scott Franklin U.S. Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128 moffat.eis@usace.army.mil Kimberly D. Bose, Secretary Federal Energy Regulatory Commission 888 First Street, N.E. Washington, DC 20426 Mr. Brian Gogas Denver Water Board Mail Code 415 1600 West 12th Avenue Denver, CO 80204 moffatproject@denverwater.org **Re: Boulder County Comments on the Moffat Collection System Draft EIS and Draft FERC License Amendment Application** Dear Mr. Franklin, Ms. Bose, and Mr. Gogas: Boulder County has reviewed the Draft EIS and Draft FERC License Amendment Application associated with the Moffat Collection System Project ("the Draft documents") and has concluded that the analysis presented in the Draft documents is inadequate. As further detailed in the attached numbered comments, the Draft documents lack sufficient information to properly evaluate the purpose and need for the project, the best alternatives to address that need, the impacts of the preferred alternative, and the appropriate mitigation for those impacts. Consequently, Boulder County would oppose the issuance of any federal permits until such time as these deficiencies are rectified. The purpose of the National Environmental Policy Act ("NEPA") is to generate information that leads to a better decision on whether projects like this should be federally permitted. NEPA requires federal agencies use all practicable means to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon that environment to the fullest extent possible. Based on the data presented so far, it does not appear that the best available scientific, empirical, and contemporary data supports the Preferred Alternative, the near tripling in size of Gross Reservoir. The Preferred Alternative concentrates nearly all the negative impacts in Grand County and Boulder County – none of whose residents will benefit from the project as Denver Water customers. **Cindy Domenico** *County Commissioner* **Ben Pearlman** *County Commissioner* **Will Toor** *County Commissioner* Boulder County Courthouse • 1325 Pearl Street • Boulder, Colorado 80302 • Tel: 303.441.3500 • Fax: 303.441.4525 Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • **www.bouldercounty.org** • commissioners@bouldercounty.org	*Boulder County supports resolution by the Corps and FERC of the issues raised by all of these groups related to data deficiencies, faulty assumptions, and the resulting conclusions. For brevity's sake, many of the specific issues raised in those comments will not be repeated in our own. But at a minimum, the County supports the following objectives of these stakeholders:* **Response #779-101:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #779-94*** *(ID 5093)**:*** *As sought by Western Resource Advocates and several others, the Corps must remove and replace the economic and demographic data used to project water demand, as well as reanalyze the effect greater conservation measures imposed by Denver Water on its customers would have on dampening demand for additional storage;* **Response #779-94:** Mandatory watering restrictions are designed for short-term reductions in water use during drought and would not independently or reliably meet the required firm yield of 18,000 AF/yr. Additionally, drought responses are not appropriate for long term water supply strategies because Denver Water must always be in a position to respond to immediate, unforeseen shortages in supply. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF/yr of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its

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	Boulder County's comments echo the concerns of many other affected parties. Boulder County reviewed preliminary drafts of comments by Coal Creek Canyon and other county residents from the area surrounding Gross Reservoir, Grand County, Western Resource Advocates, Trout Unlimited, the City of Boulder, and others. County staff also met with U.S. Forest Service to hear its concerns about the Draft documents. In general, Boulder County supports resolution by the Corps and FERC of the issues raised by all of these groups related to data deficiencies, faulty assumptions, and the resulting conclusions. For brevity's sake, many of the specific issues raised in those comments will not be repeated in our own. But at a minimum, the County supports the following objectives of these stakeholders: (1) As sought by Western Resource Advocates and several others, the Corps must remove and replace the economic and demographic data used to project water demand, as well as reanalyze the effect greater conservation measures imposed by Denver Water on its customers would have on dampening demand for additional storage; (2) Before processing Denver Water's license amendment application, FERC must require Denver Water reach agreement with the USFS on the additional resource studies the USFS has been requesting since 2008 as well as the extent of the USFS's Federal Power Act § 4(e) authority over this project; (3) Neither FERC nor the Corps should approve any alternative expanding Gross Reservoir without conditioning that approval on binding mitigation measures acceptable to a majority of affected residents, which measures must at a minimum address temporary and permanent impacts to local and state roads; traffic levels; traveler safety; access to homes during medical, wildfire, or other emergencies; noise, light, and air pollution; and recreational opportunities; (4) The Corps should allow no further dewatering of the Upper Colorado River basin via grant of a Clean Water Act § 404 permit for this project unless such approval is conditioned on execution of a mandatory stream flow management plan that includes measurable performance standards, ongoing monitoring mechanisms, and enforcement provisions satisfactory to Grand and Boulder County; (5) In alignment with concerns raised by the City of Boulder, should the Corps grant a § 404 permit for the expansion of Gross Reservoir, the Corps should include as a condition of that approval permanent preservation of equally valuable land, preferably within Boulder County, although preservation of lands along the Highway 93 corridor south of Boulder County could also suffice as further explained below, as a method of offsite mitigation of significant impacts on plant and animal habitat; and (6) Should the Corps grant a § 404 permit for any expansion of Gross Reservoir, the Corps should require Denver Water design and implement a project that support full implementation of the "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette, as necessary but not sufficient aquatic mitigation for impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam. In addition to the parties listed above, our concerns after reviewing the Moffat Draft documents mirror most of the EPA's concerns about the initial DRAFT EIS analysis published for the Windy Gap Firming Project, including: an improperly truncated review of alternatives; a lack of meaningful analysis on secondary and cumulative impacts, given other reasonably foreseeable water projects; substantial and unacceptable impacts to the Upper Colorado River basin and Front Range resources; and insufficient mitigation to compensate for unavoidable impacts. Although we do not yet know the EPA's position, we agree with Grand County that the Moffat system expansion and Windy Gap Firming projects should be analyzed together. 2 of 28	Purpose and Need (Table 1.1 of the DEIS and FEIS). Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. Recent Denver Regional Council of Governments (DRCOG) projections (2007) show an average annual growth of 1.63% for the Denver area between 2000 and 2020. The 2008 State Demographer projections cited by the EPA result in average annual growth of 1.76% for the Denver Primary Metropolitan Statistical Area (PMSA) between 2000 and 2020. Both the more recent DRCOG projections and the 2008 State Demographer projections are not inconsistent with the DRCOG projections originally used in Denver Water's model. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data from DRCOG, Colorado Department of Local Affairs (DOLA) or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. ***Comment #779-13*** *(ID 5092)**:*** *Before processing Denver Water's license amendment application, FERC must require Denver Water reach agreement with the USFS on the additional resource studies the USFS has been requesting since 2008 as well as the extent of the USFS's Federal Power Act § 4(e) authority over this project;* **Response #779-13:** The FERC Amendment process is outside the Corps' review process. Comments specific to the FERC process are addressed in the "Final FERC Hydropower License Amendment Application."

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	Before authorizing the irreversible and irretrievable commitment of resources to a project that will further dewater the already decimated Colorado River headwaters, the Corps and FERC must mandate a more thorough and accurate analysis for public review and comment. This analysis must show why Denver Water cannot address its reliability, vulnerability, and flexibility needs by conserving more water within its service area on the Front Range. Please note that, unless otherwise specified, the comments below refer to the Preferred Alternative. We take this approach because that is the alternative likely to have the greatest direct, indirect, and cumulative impacts on Boulder County and our residents. Note also that we choose to respond to both the Corps and the FERC Draft documents in a single consolidated set of comments, notwithstanding the different regulations applicable to each federal permit and the different study areas used. The FERC document references the Corps document for analysis of the environmental impacts yet, for some issues, critical analyses related to environmental effects is only present in the FERC documents (e.g., whether to transport construction materials in trucks or rail). To fully evaluate the proposal's impacts, both the Draft documents must be considered together. This letter incorporates by reference all of the past comments submitted to the Corps of Engineers by Boulder County during the Moffat Collection System Project EIS process. And Boulder County preserves its right to raise additional issues later in the NEPA process. Unless and until the county is persuaded that the best data and most robust assumptions support the additional transmountain diversions the current proposal would trigger, and the impacts on affected parties are suitably mitigated, we cannot support expanding Gross Reservoir. The county does support the efforts of Denver Water to plan wisely for the future and we appreciate the chance to provide input on the project. We look forward to working with each of you to resolve our concerns. If you have questions about our comments, please let us know or contact Assistant County Attorney Ben Doyle at bdoyle@bouldercounty.org or (303) 441-3854. Very truly yours, COUNTY OF BOULDER, a body corporate and politic Cindy Domenico By: Cindy Domenico, Chair Ben Pearlman By: Ben Pearlman, Vice Chair Will Toor By: Will Toor, Commissioner 3 of 28	The Corps conducted surveys for special status plant populations at Gross Reservoir during the summer of 2010 after coordination with the USFS Arapaho & Roosevelt National Forests botanist and wildlife biologist regarding the target species list, scope, and qualifications of the surveyors. Additionally, surveys were conducted for northern goshawk, and northern leopard frog. The results are summarized in FEIS Sections 3.7.1 and 5.7.1, and additional details are provided in the Special Status Species List in Appendix G-1. A technical report has also been prepared that describes the results of surveys for these species and is included in FEIS Appendix G-3. ***Comment #779-91*** *(ID 5091)**:*** *Neither FERC nor the Corps should approve any alternative expanding Gross Reservoir without conditioning that approval on binding mitigation measures acceptable to a majority of affected residents, which measures must at a minimum address temporary and permanent impacts to local and state roads; traffic levels; traveler safety; access to homes during medical, wildfire, or other emergencies; noise, light, and air pollution; and recreational opportunities;* **Response #779-91:** Please see the response to Comment ID 5015. ***Comment #779-12*** *(ID 5090)**:*** *The Corps should allow no further dewatering of the Upper Colorado River basin via grant of a Clean Water Act § 404 permit for this project unless such approval is conditioned on execution of a mandatory stream flow management plan that includes measurable performance standards, ongoing monitoring mechanisms, and enforcement provisions satisfactory to Grand and Boulder County;*

Comment Information	Comment	Comments and Responses
	cc: Office of Mark Udall, U.S. Senator, Colorado Hart Office Building Suite SH-317 Washington, D.C. 20510 Office of Michael Bennet, U.S. Senator, Colorado 702 Hart Senate Office Building Washington, D.C. 20510 Office of Jared Polis, U.S. Representative, 2nd Congressional District of Colorado 501 Cannon House Office Building Washington, D.C. 20515 Secretary Ken Salazar, U.S. Department of the Interior 1849 C Street NW Washington, D.C. 20240 feedback@ios.doi.gov U.S. Fish and Wildlife Service c/o Stephen Guertin, Regional Director, Mountain-Prairie Region 134 Union Boulevard Lakewood, Colorado 80228 MountainPrairie@fws.gov US EPA Region 8 c/o Jim Luey 8OC-EISC 1595 Wynkoop St Denver, CO 80202-1129 USFS Office of General Counsel, Rocky Mountain Regional Office c/o Lois Witte 740 Simms Street, Suite 309 Golden, Colorado 80401-4790 Lois.Witte@usda.gov Office of Claire Levy, Colorado State Representative, District 13 200 E. Colfax Avenue, Room 271 Denver, CO 80203 claire@clairelevy.org Office of Dan Gibbs, Colorado State Senator, District 16 200 E. Colfax Avenue Denver, CO 80203 dan.gibbs.senate@state.co.us Colorado Department of Public Health and Environment, Water Quality Control Division c/o Christy Pickens, Surface Water Specialist, Environmental Data Unit WQCD-WSP-EDU-B1 4300 Cherry Creek Drive South 4 of 28	**Response #779-12:** If issued, a Section 404 Permit would include a statement that the Corps can re-evaluate and re-condition the Section 404 Permit as conditions warrant. ***Comment #779-86*** *(ID 5089)**:*** *In alignment with concerns raised by the City of Boulder, should the Corps grant a § 404 permit for the expansion of Gross Reservoir, the Corps should include as a condition of that approval permanent preservation of equally valuable land, preferably within Boulder County, although preservation of lands along the Highway 93 corridor south of Boulder County could also suffice as further explained below, as a method of offsite mitigation of significant impacts on plant and animal habitat; and* **Response #779-86:** Please see the response to Comment ID 5003. ***Comment #779-11*** *(ID 5088)**:*** *Should the Corps grant a Section 404 permit for any expansion of Gross Reservoir, the Corps should require Denver Water design and implement a project that support full implementation of the "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette, as necessary but not sufficient aquatic mitigation for impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam.* **Response #779-11:** The Corps notes the comment. ***Comment #779-97*** *(ID 5087)**:*** *In addition to the parties listed above, our concerns after reviewing the Moffat Draft documents mirror most of the EPA's concerns about the initial DRAFT EIS analysis published for the Windy Gap Firming*

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	Denver, CO 80246-1530 cdpicken@cdphe.state.co.us Colorado Department of Transportation c/o Reza Akhavan Region 6 Transportation Director 2000 South Holly Denver, CO 80222 Colorado Division of Wildlife Denver Service Center/NE Region Office 6060 Broadway Denver, CO 80216 Grand County c/o Sullivan Green Seavy, LLC 3223 Arapahoe Avenue, Suite 300 Boulder, CO 80303 lawgreen@earthlink.net City of Boulder Jane Brautigam, City Manager P. O. Box 791 Boulder, CO 80306 brautigamj@bouldercolorado.gov City of Lafayette Gary Klaphake, City Administrator 1290 South Public Road Lafayette, CO 80026 garyk@cityoflafayette.com Rocky Mountain Fire District 7700 Baseline Road Boulder, CO 80303 chief@rockymountainfire.org Timberline Fire Authority 448 Pine Drive Rollinsville, CO 80474 [redacted] Coal Creek Canyon Fire Protection District PO Box 7187 Crescent Branch Golden, CO 80403 CCCFPD@aol.com Environmental Group of Coal Creek Canyon [redacted] 5 of 28	*Project, including: an improperly truncated review of alternatives; a lack of meaningful analysis on secondary and cumulative impacts, given other reasonably foreseeable water projects; substantial and unacceptable impacts to the Upper Colorado River basin and Front Range resources; and insufficient mitigation to compensate for unavoidable impacts. Although we do not yet know the EPA's position, we agree with Grand County that the Moffat system expansion and Windy Gap Firming projects should be analyzed together.* **Response #779-97:** Please see the response to Comment ID 5058. ***Comment #779-96*** *(ID 5086)**:*** *Before authorizing the irreversible and irretrievable commitment of resources to a project that will further dewater the already decimated Colorado River headwaters, the Corps and FERC must mandate a more thorough and accurate analysis for public review and comment. This analysis must show why Denver Water cannot address its reliability, vulnerability, and flexibility needs by conserving more water within its service area on the Front Range.* **Response #779-96:** Please see the response to Comment ID 5064. ***Comment #779-100*** *(ID 5085)**:*** *Please note that, unless otherwise specified, the comments below refer to the Preferred Alternative. We take this approach because that is the alternative likely to have the greatest direct, indirect, and cumulative impacts on Boulder County and our residents. Note also that we choose to respond to both the Corps and the FERC Draft documents in a single consolidated set of comments, notwithstanding the different regulations applicable*

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	Lakeshore Park residents c/o Jake and Carla Owsley 771 Lakeshore Drive Boulder, CO 80302 Preserve Unique Magnolia Association ("PUMA") puma@magnoliaroad.net Western Resource Advocates c/o Bart Miller or Drew Beckwith 2260 Baseline Road, Suite 200 Boulder, CO 80302 bmiller@westernresources.org dbeckwith@westernresources.org 6 of 28	*to each federal permit and the different study areas used. The FERC document references the Corps document for analysis of the environmental impacts yet, for some issues, critical analyses related to environmental effects is only present in the FERC documents (e.g., whether to transport construction materials in trucks or rail). To fully evaluate the proposal's impacts, both the Draft documents must be considered together. This letter incorporates by reference all of the past comments submitted to the Corps of Engineers by Boulder County during the Moffat Collection System Project EIS process. And Boulder County preserves its right to raise additional issues later in the NEPA process. Unless and until the county is persuaded that the best data and most robust assumptions support the additional transmountain diversions the current proposal would trigger, and the impacts on affected parties are suitably mitigated, we cannot support expanding Gross Reservoir. The county does support the efforts of Denver Water to plan wisely for the future and we appreciate the chance to provide input on the project. We look forward to working with each of you to resolve our concerns. If you have questions about our comments, please let us know or contact Assistant County Attorney Ben Doyle at bdoyle@bouldercounty.org or (303) 441-3854.* **Response #779-100:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #779-99*** *(ID 5084)**:*** *The Draft documents fail to objectively demonstrate a valid purpose and need for additional storage capacity on the Front Range, given unaddressed or underestimated opportunities for greater conservation measures and better management of the existing supply and delivery system. a. Invalid population and*

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	Numbered Boulder County Comments on Moffat Collection System Draft Environmental Impact Statement and Draft FERC License Amendment Application **1. The Draft documents fail to objectively demonstrate a valid purpose and need for additional storage capacity on the Front Range, given unaddressed or underestimated opportunities for greater conservation measures and better management of the existing supply and delivery system.** a. Invalid population and economic growth projections. The growth projections used by Denver Water and included in the Draft documents as a fundamental basis for the *Purpose and Need Statement* for the project are invalid, out-of-date, and do not accurately reflect what has occurred economically and from a growth management standpoint since 2000. Denver Water relied on data compiled by the Denver Regional Council of Governments ("DRCOG") between 1973 – 2000, then made assumptions about these trends extending into the future under an unrestricted water supply demand scenario. The 1973 – 2000 period was a time (with some disruption in the mid-1980s) of tremendous growth in the Denver metropolitan area. Even disregarding the unanticipated and tumultuous economic chaos that surfaced in 2008, the rate of growth in the Denver area and among Denver Water's customer jurisdictions began to decline between 1990 – 2008, from 15.8% between 1990 – 2000 to 7.5% between 2000 – 2008. Harvey Economics' review of Denver Water's Integrated Resource Plan lists the assumptions made in the Denver Water forecasting such as "increasing full employment growth path consistent with baby boom retirement," "no economic shocks," "assum[ing] a Federal budget surplus over the next 10 years...", and ignoring "economic cycles."[1] Since the fall of 2008, none of these assumptions can be held as credible or used as a basis for projecting growth and water supply "needs." In fact, Harvey Economics prudently qualified the reliability of forecasting with explicit caveats on pages 7 and 8 of their review, summarized on page 9 in the last paragraph, writing that "In truth, there is little opportunity for testing the accuracy of demographic and economic forecasts. Such forecasts are inherently very uncertain, and they are based upon a host of assumptions that must be made about an uncertain future." b. Failure to consider recent developments in local and regional planning for Denver metro. i. Neither Denver Water nor the DRAFT EIS reference a significant DRCOG initiative to include a Regional Sustainability Element in MetroVision 2035, an eight county/45 municipality understanding for managing and balancing growth in the DRCOG region, although it has been publicly in the works for many months. Among other things, the draft Element calls for "accommodating 50% of new housing and 75% of new employment" within "urban centers" by 2035. By extension, greater density will likely lead to less water use due to fewer or smaller lawns/landscaping. And common walls on multi-family or multi-use buildings will likely lead to less heating and water line extension/tap requirements, particularly as local building and plumbing codes along with consumer preferences turn more towards LEED and other sustainability-conscious design and construction practices. The draft Regional Sustainability Element also calls for "reduc[ing] per capita municipal and industrial water use by 13.5% from 2005 levels by 2030 (eliminate state's forecasted gap [1] Draft EIS: Purpose and Need, App. A, pages 7 – 9.	*economic growth projections. The growth projections used by Denver Water and included in the Draft documents as a fundamental basis for the Purpose and Need Statement for the project are invalid, out-of-date, and do not accurately reflect what has occurred economically and from a growth management standpoint since 2000. Denver Water relied on data compiled by the Denver Regional Council of Governments ("DRCOG") between 1973 – 2000, then made assumptions about these trends extending into the future under an unrestricted water supply demand scenario. The 1973 – 2000 period was a time (with some disruption in the mid-1980s) of tremendous growth in the Denver metropolitan area. Even disregarding the unanticipated and tumultuous economic chaos that surfaced in 2008, the rate of growth in the Denver area and among Denver Water's customer jurisdictions began to decline between 1990 – 2008, from 15.8% between 1990 – 2000 to 7.5% between 2000 – 2008. Harvey Economics' review of Denver Water's Integrated Resource Plan lists the assumptions made in the Denver Water forecasting such as "increasing full employment growth path consistent with baby boom retirement," "no economic shocks," "assume[ing] a Federal budget surplus over the next 10 years...", and ignoring "economic cycles."[1] Since the fall of 2008, none of these assumptions can be held as credible or used as a basis for projecting growth and water supply "needs." In fact, Harvey Economics prudently qualified the reliability of forecasting with explicit caveats on pages 7 and 8 of their review, summarized on page 9 in the last paragraph, writing that "In truth, there is little opportunity for testing the accuracy of demographic and economic forecasts. Such forecasts are inherently very uncertain, and they are based upon a host of assumptions that must be made about an uncertain future." FOOTNOTE: [1] Draft EIS: Purpose and Need, App. A, pages 7 – 9.*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application between supply and demand)." The Regional Sustainability Element was presented to the Metro Vision Issues Committee, or MVIC, on February 3, 2010 where it was endorsed and authorized to proceed on for additional refinement, public input and review by the DRCOG Board of Directors. Clearly, through this initiative and other actions by the DRCOG membership, both imposed and voluntary constraints on consumption of resources have become a front row consideration in regional and local planning. Since many of Denver Water's urban customers are in DRCOG, this could have a significant influence on Denver Water's projected supply needs calculations. ii. In a letter sent to Peter Chandler, Regulatory Project Manager – US Army Corps of Engineers during the EIS scoping process dated November 6, 2003 the Boulder County Commissioners specifically requested that Denver Water become familiar with the Magnolia Environmental Preservation Plan in preparing its applications for the Moffat Collection System Project.[2] There is no citation in either the text or the source references listed in the Draft EIS to this document. These kinds of omissions are particularly concerning, since all of the negative and irreversible impacts are to be borne by Boulder County and its residents, none of whom are within the Denver Water service area. Boulder County has spearheaded extensive sustainability programs, adopting a Sustainability Element into its Comprehensive Plan in 2007 which calls for a reduction in wasteful resource practices, the preservation and viability of open and rural lands, and the efficient use of renewable resources.[3] The preferred alternative identified in the Draft EIS makes no reference to this Sustainability Element or the other baseline goals and policies of the Comprehensive Plan with regard to how it is consistent with the Plan, advances its guidance, or how it intends to aggressively mitigate the short, mid-term and long term impacts created if the project goes forward. c. Understatement of potential for more water conservation over time. i. The potential for additional conservation is understated in the Draft documents, given the moderate but growing success of conservation efforts undertaken over the past decade in Denver. This recent history presages greater public acceptance of conservation over time. Moreover, the technological feasibility of conservation measures will continue to increase with time (e.g., recycling of water). ii. The Draft documents fail to address why Denver Water cannot change its rate structure to incent greater conservation through reduced consumption. At least as [2] Letter from Boulder County to Peter Chandler on EIS Scoping, Regulatory Project Mgr., Corps of Eng'rs, (Nov. 6, 2003) (see Comment #10). [3] Since its adoption in 1978, the Boulder County Comprehensive Plan ("BCCP") has directed urban growth to urban areas and aggressively pursued the protection of environmental and agricultural resources as well as the retention of a rural landscape in the unincorporated areas through 1) changes and innovations in the county's Land Use Code; 2) open space purchases supported repeatedly by county taxpayers funding open space programs at the polls; 3) land exchange agreements between the county, US Forest Service and Bureau of Land Management; 4) intergovernmental agreements between the county and cities defining the boundaries between urban and rural planning areas; 5) conservation easement programs; 6) forest health restoration and wildfire mitigation action plans in coordination with other agencies and private landowners; and 7) recognition of locally developed community plans such as the Magnolia Environmental Preservation Plan by inclusion into the BCCP. 8 of 28	**Response #779-99:** Mandatory watering restrictions are designed for short-term reductions in water use during drought and would not independently or reliably meet the required firm yield of 18,000 AF/yr. Additionally, drought responses are not appropriate for long term water supply strategies because Denver Water must always be in a position to respond to immediate, unforeseen shortages in supply. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF/yr of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need (Table 1.1 of the DEIS and FEIS). Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. Recent DRCOG projections (2007) show an average annual growth of 1.63% for the Denver area between 2000 and 2020. The 2008 State Demographer projections cited by the EPA result in average annual growth of 1.76% for the Denver PMSA between 2000 and 2020. Both the more recent DRCOG projections and the 2008 State Demographer projections are not inconsistent with the DRCOG projections originally used in Denver Water's model. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data from DRCOG, DOLA or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data.

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application of 2004, Denver's fixed monthly service charge was the second lowest of 12 Front Range municipalities reviewed.[4] This report also looked at the unit rates per 1,000 gallons of water consumed for these 12 municipalities and concluded that Denver Water, while using a theoretically more price sensitive block rate structure, sets its rates at such a low level that it "sends a very weak conservation price signal" to its customers, "particularly to the high-volume water users."[5] iii. The project purpose is based on meeting unrestricted demand, which does not reflect current operation procedures. Chapter 1 of the DRAFT EIS Purpose & Need section reports that the Moffat system *could* have run out of water in recent drought years (circa 2002), but that didn't happen. d. Overstatement of benefit project would have on reducing system vulnerability. Expanding Gross Reservoir under the Preferred Alternative would add only 10% to Denver Water's northern supply system, a marginal improvement on balancing the storage in the northern and southern delivery systems. e. Overstatement of reservoir capacity needed. i. The DRAFT EIS cites a 30% "safety factor" in sizing the Gross Reservoir expansion, representing an additional 30,000 acre-feet of storage. This factor received only lukewarm support in the Harvey Economics report attached to the Draft FERC License Amendment Application. The Harvey report could not conclude that this factor is not excessive. That is, this conservative estimate may well result in a possible oversizing of the reservoir capacity needed. ii. The Draft documents also fail to adequately consider the impact of the additional storage that may become available in the Reuter-Hess and Chatfield reservoirs. **2. Even assuming a valid purpose and need for the project, the Draft documents fail to establish a valid analysis of alternatives. Alternatives with less environmental impact were prematurely screened out of consideration due to a latent bias toward expanding Gross Reservoir and flawed cost-benefit analyses.** a. Noncompliance with LEDPA requirement. In considering whether to issue a § 404 permit, the Corps must identify the least environmentally damaging practicable alternative ("LEDPA").[6] "No discharge shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have any other significant adverse environmental consequences."[7] Noncompliance with this LEDPA requirement is a sufficient basis for the Corps to deny a permit. The burden of proving compliance lies with Denver Water, and Denver Water has not met that burden, given the selection of the full expansion option as the Preferred Alternative. While the Corps is not legally required to select the [4] *See* WESTERN RESOURCE ADVOCATES, *Water Rate Structures in Colorado: How Colorado Cities Compare in Using this Important Water Use Efficiency Tool*, September 2004, *available at* http://www.westernresourceadvocates.org/media/pdf/Colorado%20Water%20Rate%20Structures.pdf. [5] *Id.* [6] 40 C.F.R. § 230.10. [7] *Id.* 9 of 28	The data and time period referred to in the comment were related to the regression model specification, not the growth or water demand projections. Further, the 1973 to 2000 period included severe economic dislocations. The water demand projections were updated for the FEIS to incorporate more recent economic and demographic data as developed by the State Demographer's Office, DRCOG and other entities. Water conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in Table 1-2 of the DEIS and FEIS. ***Comment #779-98*** *(ID 5083)**:*** *Failure to consider recent developments in local and regional planning for Denver metro. Neither Denver Water nor the DRAFT EIS reference a significant*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application environmentally preferred alternative, the Corps should reevaluate whether more environmentally preferable alternatives to expansion of Gross Reservoir are "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."[8] b. Bias towards expanding Gross Reservoir as a solution to projected needs. i. In 1954, Denver Water sited the dam to allow for an ultimate height of 465 feet but only built it to a height of 340 feet. It appears this original design for Gross Reservoir contemplating a larger capacity storage facility than actually built was given more weight as screening criteria than is appropriate or consistent with NEPA. This flawed approach resulted in premature elimination of less impactful alternatives before those impacts and associated mitigation costs could be fairly contrasted and compared. The exclusion of all alternatives not incorporating an expansion of Gross reflects a biased or even pre-ordained analysis of alternatives. The Corps should not permit developers to artificially constrain the Corps' alternatives analysis by defining the project's purpose in an overly narrow manner.[9] This is not a reasonable range of alternatives. Denver Water's "sunk cost" in the Gross Reservoir facility has already been adequately amortized several times over and therefore should not be a factor in the analysis. The only legitimate factor in this regard is whatever environmental advantage having a dam in place that can hold more water will give. At a minimum, the Draft documents should be revised to plainly disclose that the original Gross Dam was built to accommodate an expansion commensurate with the one proposed, biasing the EIS result toward alternatives involving full expansion of the reservoir. ii. Note: The Draft documents do not adequately address whether the Gross Dam site works for the additional six feet required to accommodate the Environmental Pool contemplated by Denver Water's IGA with the Cities of Boulder and Lafayette. More engineering feasibility analysis on this issue is necessary. c. Flawed cost-benefit analysis. i. The Draft documents do not include adequate discussion of costs and benefits that reflect the full cost of the alternatives. Although a cost/benefit analysis is not required under NEPA, it is encouraged to fully evaluate the alternatives.[10] Full costs should include capital, operations and maintenance, and mitigation costs. Full benefits should include both the monetary value of saleable water as well as intangible benefits. Before issuing a Final EIS for this project, the Corps should require Denver Water to include a more robust cost/benefit analysis in the screening process, as further described below. ii. Major capital costs were applied in Screen 1C along with Purpose and Need and "fatal flaws." This process is not consistent with the definition of Purpose and Need, [8] *Id.* at § 230.3(q) (definition of "practicable"). [9] *See, e.g., Nat'l Wildlife Fed'n v. Whistler*, 27 F.3d 1341, 1346 (8th Cir. 1994). [10] "[A]n environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision." 40 C.F.R. § 1502.23. 10 of 28	*DRCOG initiative to include a Regional Sustainability Element in MetroVision 2035, an eight county/45 municipality understanding for managing and balancing growth in the DRCOG region, although it has been publicly in the works for many months. Among other things, the draft Element calls for "accommodating 50% of new housing and 75% of new employment" within "urban centers" by 2035. By extension, greater density will likely lead to less water use due to fewer or smaller lawns/ landscaping. And common walls on multi-family or multi-use buildings will likely lead to less heating and water line extension/tap requirements, particularly as local building and plumbing codes along with consumer preferences turn more towards LEED and other sustainability-conscious design and construction practices. The draft Regional Sustainability Element also calls for "reduc[ing] per capita municipal and industrial water use by 13.5% from 2005 levels by 2030 (eliminate state's forecasted gap between supply and demand)." The Regional Sustainability Element was presented to the Metro Vision Issues Committee, or MVIC, on February 3, 2010 where it was endorsed and authorized to proceed on for additional refinement, public input and review by the DRCOG Board of Directors. Clearly, through this initiative and other actions by the DRCOG membership, both imposed and voluntary constraints on consumption of resources have become a front row consideration in regional and local planning. Since many of Denver Water's urban customers are in DRCOG, this could have a significant influence on Denver Water's projected supply needs calculations.* **Response #779-98:** The recent timeline of the work done to develop and promote the Regional Sustainability Element for Metro Vision 2035 did not allow for those elements to be captured in the DEIS. The projected future

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application which does not include "lowest cost" as either a purpose of the project nor as a stated need. iii. The cost of the No Action alternative is not presented in the Draft EIS.[11] An effort must be made to estimate costs associated with strategies such as using a portion of the Strategic Water Reserve and enforcing mandatory restrictions to reduce demand. iv. Broad assumptions were used to measure the cost of early alternatives, such as assuming an "excessive cost" of five times the lowest-cost alternative. Why five? This methodology needs better justification. v. Similar EIS documents prepared by the Corps and the Bureau of Reclamation in Colorado over the past ten years have applied widely different cost methods. For example, the following four major recent EISs based cost on different factors, including firm yield, average annual yield, and storage capacity. This variation suggests a history of inconsistent assumptions on the true cost of such projects, making it difficult to compare the cost-effectiveness of any one project, including the alternatives in the Moffat Draft documents. 1. *Windy Gap Firming Project*: total storage unit cost based on a weighted average of costs for each component, including capital costs for pipelines, 30% contingencies for construction and for design, and 5% interest over 50 years 2. *Northern Integrated Supply Project ("NISP")*: capital costs included but not operations, maintenance, or pumping costs for 19 original alternatives; Preferred Alternative feasibility cost included capital and annual operations and maintenance (fixed as 0.5% of construction cost), but not mitigation costs 3. *Rueter-Hess Reservoir*: costs not applied until second level screening; average annual yield costs only provided for two reservoir sizes considered; operations and maintenance and power costs converted to present worth (5% interest over 50 years) and included with capital costs, but average annual yield costs did not include operations and maintenance costs 4. *Moffat Draft EIS*: costs include capital cost and present worth operations and maintenance; mitigation costs do not seem to be included vi. The mitigation information available in the Draft documents is not adequate for costing purposes and should be supplemented and included in the cost screening process. 1. Although compensatory mitigation may not be used as a method to reduce impacts in the evaluation of the LEDPA for the purposes of requirements, "[p]roposed mitigation should be considered throughout the NEPA process."[12] The Corps and FERC must consider reasonable alternative [11] Draft EIS, Chap. 2, Table 2-5 Relative Cost of Project Alternatives. [12] Memorandum for Heads of Fed. Dep'ts and Agencies from Council on Environmental Quality, Draft Guidance for NEPA Mitigation and Monitoring § II (Feb. 18, 2010). 11 of 28	water demands described in the DEIS incorporate economic and demographic projections developed by DRCOG and others (as described in the technical memoranda included in Appendix A), but were estimated several years prior to the development of the Regional Sustainability Element. The inputs used in the water demand forecasting model have been reviewed and updated as part of the FEIS. The most recent population and employment growth projections have been reflected in the FEIS, including DRCOG projections. The creation of urban centers does not necessarily mean less water use, because more employment would be concentrated in urban parts of the Denver area served by Denver Water. Whereas density would increase in certain urban centers, more green space would be available for non-urban centers. ***Comment #779-95*** *(ID 5082)**:*** *In a letter sent to Peter Chandler, Regulatory Project Manager – US Army Corps of Engineers during the EIS scoping process dated November 6, 2003 the Boulder County Commissioners specifically requested that Denver Water become familiar with the Magnolia Environmental Preservation Plan in preparing its applications for the Moffat Collection System Project.[2] There is no citation in either the text or the source references listed in the Draft EIS to this document. These kinds of omissions are particularly concerning, since all of the negative and irreversible impacts are to be borne by Boulder County and its residents, none of whom are within the Denver Water service area. Boulder County has spearheaded extensive sustainability programs, adopting a Sustainability Element into its Comprehensive Plan in 2007 which calls for a reduction in wasteful resource practices, the preservation and viability of open and rural lands, and the efficient use of renewable resources.[3] The*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application mitigation measures in the EIS analysis.[13] "The EIS should, and the Record of Decision must, describe those mitigation measures that the agency is adopting and committed to implementing."[14] However, mitigation costs should be identified to be sure they are affordable and can actually be implemented. 2. The message from the Draft documents that mitigation will "possibly" be included in the Final EIS, and that Denver Water is pursuing additional environmental "enhancement" opportunities separate from the EIS process is unsatisfactory. In present form, the Draft documents do not identify all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem, as required by 40 CFR Part 230.12. d. Premature elimination of alternatives involving greater hydropower generation. i. Alternatives involving expansion of Gross Reservoir that result in adding more than 5 megawatts of hydropower were prematurely screened out. As proposed, the project qualifies for expedited FERC processing as a major project 5MW or less, which allows for streamlined or eliminated requirements for construction schedules, statements of costs and financing, project operations and resource utilization plans, and the like. Despite Denver Water's contention that hydropower generation is an ancillary benefit from the water storage functionality of Gross Reservoir, expedited processing and some additional cost are not enough justification to forego the substantial benefit of additional clean power for the region. This is especially true in light of the claim Denver Water has made to Boulder County that the power generation aspect of the project preempts the County's H.B. 1041 authority over the project. The Corps and FERC should require further analysis on the costs and benefits of adding substantial hydropower, either in a reformulated statement of purpose and need, a recalibrated analysis of alternatives, or as a form of regional impact mitigation. Additional hydropower would help offset the indirect and cumulative impacts on air pollution, climate change, and demand for power caused by the additional development induced by an enlarged Gross Reservoir. ii. The proposed modifications to the hydroelectric project would not increase the total installed capacity of the project, would not result in an increase in the installed nameplate capacity of 2 megawatts (MW) or more, and would not increase the hydroelectric project's maximum hydraulic capacity by 15% or more.[15] Therefore, this license amendment application is for a "non-capacity-related amendment" per 18 CFR § 4.210(b). FERC states that up to 5 more kWh could be produced (16.5% increase) with minor modifications to the existing system, and implies that this is part of the Preferred Alternative.[16] Beyond that modest increase, however, Denver Water's FERC license amendment application concludes that modifications to the existing hydroelectric system to increase capacity beyond the existing 8,100 kW [13] Draft Guidance for NEPA Mitigation and Monitoring § II.A.1, *supra* note 12 (citing 40 C.F.R. §§ 1502.14(f), 1508.25(b)(3)). [14] *Id.* (citing 40 C.F.R. § 1505.2(c)). [15] Draft FERC License Amendment Application, page I. [16] *See id.*, Atch. E-5. 12 of 28	*preferred alternative identified in the Draft EIS makes no reference to this Sustainability Element or the other baseline goals and policies of the Comprehensive Plan with regard to how it is consistent with the Plan, advances its guidance, or how it intends to aggressively mitigate the short, mid-term and long term impacts created if the project goes forward. FOOTNOTES: [2] Letter from Boulder County to Peter Chandler on EIS Scoping, Regulatory Project Mgr., Corps of Eng'rs, (Nov. 6, 2003) (see Comment #10). [3] Since its adoption in 1978, the Boulder County Comprehensive Plan ("BCCP") has directed urban growth to urban areas and aggressively pursued the protection of environmental and agricultural resources as well as the retention of a rural landscape in the unincorporated areas through 1) changes and innovations in the county's Land Use Code; 2) open space purchases supported repeatedly by county taxpayers funding open space programs at the polls; 3) land exchange agreements between the county, US Forest Service and Bureau of Land Management; 4) intergovernmental agreements between the county and cities defining the boundaries between urban and rural planning areas; 5) conservation easement programs; 6) forest health restoration and wildfire mitigation action plans in coordination with other agencies and private landowners; and 7) recognition of locally developed community plans such as the Magnolia Environmental Preservation Plan by inclusion into the BCCP.* **Response #779-95:** The recommendations in the Magnolia Environmental Preservation Plan (MEPP) were reviewed and are summarized in FEIS Section 3.16. The Moffat Project would not result in major conflicts with the recommendations contained in the MEPP.

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application "nameplate' would require major modifications to the system and would not be economically feasible at this time.[17] However, no cost comparison is provided in the FERC application or in the Draft EIS to substantiate this conclusion. The Corps and FERC should require Denver Water to explain the cost basis for this conclusion. iii. The Draft documents do not discuss increasing hydropower production to allow pump-back for release during high-use periods. The Draft documents should include a statement on whether this concept showed up in earlier alternatives and, if so, why it was dismissed. e. Premature elimination of alternatives involving greater conservation. i. The assumption water demand will "harden" – i.e., conservation gains will decrease with time – is questionable and should be removed as a criterion for comparing alternatives.[18] Recent conservation successes belie the assumption; from 2001 to 2008 Denver residents achieved an 18% reduction. ii. Once projections of future demand are corrected based on updated population and economic data, the Corps and FERC should mandate better evaluation of conservation-based alternatives to meet that demand. Revised growth projections could negate the need for the project at all, or negate the need to designate expansion of Gross Reservoir as the preferred alternative. iii. Many Denver Water municipal customers do not have conservation plans on file with the Colorado Water Conservation Board ("CWCB"). Until these water customers come into compliance with state law, the Corps should withhold a § 404 permit to build a bigger dam as a way to protect supply. This is especially true with respect to Arvada, which does not have a state-approved conservation plan. Just because Arvada contracted with Denver Water for 3,000 acre-feet/year of Moffat project water does not inexorably lead to the conclusion Gross must be built. That is the tail wagging the dog. iv. Agricultural-Urban Cooperative Water Sharing Agreements were not evaluated, which could be a good small-scale alternative to increase yield of the Moffat system. f. Failure to compare the homeland security pros and cons of different alternatives. The Draft documents do not communicate how well different alternatives address national security concerns. Indeed, the entire Moffat system appears vulnerable to human-caused disasters, including terrorism. Denver Water's failure to address this aspect of the project is especially problematic given its alleged goal of reducing system vulnerability. By this metric, none of the alternatives fully address the purpose and need. The Corps and FERC should mandate a [17] *Id.*, Atch. B, page B-1. [18] *See, e.g.*, Statement of Mary Ann Dickinson, Exec. Dir., Alliance for Water Efficiency, March 31, 2009 Hearing before the Senate Committee on Environment and Public Works, Subcommittee on Water and Wildlife, *EPA's Role in Promoting Water Efficiency* ("Field experience suggests that as technology changes and new products appear in the marketplace, there will always be additional conservation potential") *and* Vera McCaig, Office of Water Conservation and Drought Planning, Colorado Water Conservation Board, presentation on *Water Conservation and Demand Hardening, available at* http://www.greatwesterninstitute.org/presentations/berthoud06/forum/McCaig-DemandHardening-Dec06.pdf. 13 of 28	***Comment #779-83*** *(ID 5081)**:*** *Understatement of potential for more water conservation over time. The potential for additional conservation is understated in the Draft documents, given the moderate but growing success of conservation efforts undertaken over the past decade in Denver. This recent history presages greater public acceptance of conservation over time. Moreover, the technological feasibility of conservation measures will continue to increase with time (e.g., recycling of water).* **Response #779-83:** Please see the response to Comment ID 5064. ***Comment #779-93*** *(ID 5080)**:*** *The Draft documents fail to address why Denver Water cannot change its rate structure to incent greater conservation through reduced consumption. At least as of 2004, Denver's fixed monthly service charge was the second lowest of 12 Front Range municipalities reviewed.[4] This report also looked at the unit rates per 1,000 gallons of water consumed for these 12 municipalities and concluded that Denver Water, while using a theoretically more price sensitive block rate structure, sets its rates at such a low level that it "sends a very weak conservation price signal" to its customers, "particularly to the high-volume water users."[5] FOOTNOTES: [4] See WESTERN RESOURCE ADVOCATES, Water Rate Structures in Colorado: How Colorado Cities Compare in Using this Important Water Use Efficiency Tool, September 2004, available at http://www.westernresourceadvocates.org/media/pdf/Colorado%20Water%20Rate%20Structures.pdf. [5] Id.* **Response #779-93:** Denver Water is a not-for-profit organization, and a significant portion of Denver Water's annual costs do

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application comparison of security measures that would be necessary for each of the alternatives, factoring in these costs to the screening process. g. Note: Boulder County does not support any alternative involving a reservoir at Leyden Gulch. Areas north and south of this location along the Highway 93 corridor have been preserved by Jefferson County and the City of Boulder to protect open space, wildlife, prairie ecosystems, and the mountain backdrop as viewed from points east. Construction of Leyden Gulch Reservoir would compromise the longtime efforts of many to preserve the Front Range Mountain Backdrop, "a unique ecological system not found elsewhere in Colorado."[19] **3. Even assuming a valid purpose and need for the project and that the Preferred Alternative is the least environmentally damaging practicable option, the impacts are not adequately analyzed and described in the Draft documents.** a. Overall inadequacy. The Draft documents do not provide sufficient information to evaluate whether the grant of a § 404 permit will cause or contribute to significant degradation of the waters of the United States.[20] Under the Guidelines, effects contributing to "significant degradation" considered individually or collectively include significantly adverse effects on: human health or welfare, taking into consideration recreational, aesthetic, and economic values; aquatic ecosystem diversity, productivity, and stability; and life stages of aquatic life and other wildlife dependent on aquatic ecosystems, taking into consideration fish and wildlife habitat. b. Failure to analyze other reasonably foreseeable projects together. "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[21] The purpose and need, alternatives, impacts, and mitigation of the Moffat Collection System expansion and Windy Gap Firming Project should be analyzed together, as both result in further dewatering of the Colorado River headwaters. Failing to do so runs the risk of authorizing unacceptable cumulative effects on water quality as well as over-allocation of water resources, particularly in Grand County on the western slope, but also in Front Range communities.[22] c. Mid-term impacts characterized as "temporary." Recognizing that construction is typically considered a temporary phenomenon, the Preferred Alternative is projected to take at least four years to complete. For those who frequent or live in the area, especially Coal Creek Canyon visitors and residents, a 49-month construction period is not "temporary." Impacts [19] Front Range Mountain Backdrop Task Force, *Front Range Mountain Backdrop: Phase 2 Final Report: Executive Summary* i (1998) (prepared by ERO Resources). "In ecological terms, the Backdrop is a regional ecotone (transition area) where plant and animal communities of the Great Plains meet the foothills of the Rocky Mountains. The result is a diverse assemblage of plants, animals, geologic features, and scenic beauty near the rapidly growing Front Range urban corridor." *Id.* [20] 40 C.F.R. § 230.10(c). [21] 40 C.F.R. § 1508.7 (definition of cumulative impacts). [22] See comments of Larry Svoboda, Environmental Assessment Director at EPA, quoted in Mark Jaffe, *Surge of Water Projects Show Little Coordination*, DENVER POST, April 26, 2009. 14 of 28	not vary with the amount of water sold. When those costs increase, the costs to ratepayers increase as well. All Denver Water customers are metered. Denver Water implements a Block Census Rate Structure (i.e., the more one uses, the more one pays). Rates are based on a cost of service analysis comprised of customer classes (e.g., residential, industrial, commercial, and institutional) and by whether customers live inside or outside the City and County of Denver. Costs are recovered from each customer class in proportion to the cost of providing the service to each class. Rates consist of a consumption charge per 1,000 gallons consumed a fixed, per account service charge. ***Comment #779-82*** *(ID 5079)**:*** *The project purpose is based on meeting unrestricted demand, which does not reflect current operation procedures. Chapter 1 of the DRAFT EIS Purpose & Need section reports that the Moffat system could have run out of water in recent drought years (circa 2002), but that didn't happen.* **Response #779-82:** Modeling water supply and annual firm yield on the basis of unrestricted demand purposefully excludes consideration of drought response plans, which are part of standard operating procedures, for several reasons. Drought responses are primarily intended to respond to droughts of unknown duration and severity, unexpected emergencies and infrastructure failure. Unlike the Strategic Water Reserve is a supply side solution, drought response is a demand side device designed to quickly bring demand down in response to reduced supply. Drought response is temporary in nature and inherently uncertain, driven by immediate conditions. Modeling water supply and firm yield assumes a perfectly operating system over a long period of time. This is a widely accepted approach for evaluating a water utility's ability to

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application may be short-term in a geological time-scale, but not in the life of certain animal species or the humans living there, using the roads, or visiting Walker Ranch Open Space or the USFS lands surrounding Gross Reservoir. The Draft EIS analysis of temporary noise and visual impacts to wildlife and visitors to Boulder County lands due to construction-related activities must be strengthened. d. Impacts on Boulder County open space. i. The conclusion in the Draft EIS that there would be no impact to Boulder County parks and open space properties is inaccurate.[23] Gross Reservoir is bordered by Walker Ranch Open Space to the east, which should be reflected in Figure 13.13-1 ("Recreation Gross Reservoir"). The proposed action will have a detrimental impact on the natural and human environment at Walker Ranch. ii. Although the proposed expansion will not cause a direct loss of county open space land, adverse indirect impacts to Walker Ranch and its users will include noise, dust, truck traffic, visual impacts, and impacts to trail users and fisherpersons on South Boulder Creek. iii. The limited discussion of the impacts from construction activities on Walker Ranch Open Space in Section 4.13 does not fully reflect the fact that views from Walker Ranch will be affected during construction, as will the experience of being in open space. iv. The Draft EIS states that, "[A]ll impacts to recreation uses would be temporary…" While this may be true of noise and construction impacts, changes to the viewshed from a larger dam at Gross Reservoir will be permanent and the Draft documents should reflect that. e. Construction-related impacts. i. The description of the construction impact area in the Draft EIS is not sufficient and needs to be redone (Chapter 4, page 337). Light, noise, trucks, and dust will exceed the immediate construction site at Gross Reservoir. These impacts will carry across the reservoir and will impact visitors of Boulder County parks and open space lands as well as residents along the transportation routes for the duration of the project. ii. One of the most worrisome "temporary" direct impacts to Coal Creek Canyon residents, many of whose homes lie within Boulder County, is the enormous increase in construction truck traffic contemplated if the Preferred Alternative is approved as proposed. The proposed increase in truck traffic poses a serious threat to the safety of travelers in Coal Creek Canyon (vehicular, bicycle, and pedestrian), road maintenance costs, and access for emergency vehicles – particularly in case of wildfire. The Draft documents do not adequately describe and address the nature of these impacts on local and regional residents during the construction period. iii. The noise, air quality, and fiscal impacts of roadway maintenance and repair caused by thousands of truck trips from the construction material source near Longmont along state highways and local roads of Boulder County will be significant, yet the [23] Draft EIS, Exec. Summary at 37. 15 of 28	meet needs under varying hydrologic conditions, while preserving management's prerogative to deploy drought response as circumstances require. The Purpose and Need for the Moffat Project includes the anticipated amount of water needed to serve customers in Denver and to serve the permanent contracts Denver Water has outside Denver. Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data from DRCOG, DOLA or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. In addition to 2002, there were four single dry years in the 45-year study period (1947-1991) when the Moffat Collection System would have run out of water. Additionally, there are other years when the Moffat Collection System would have been close to running out of water. Actual Moffat Collection System operations in 2002 demonstrate the lack of a reliable water supply. Denver Water would have run out of water if it had not implemented emergency measures to preserve and increase water in the Moffat Collection System, including mandatory restrictions, strict surcharges for water use, reducing minimum bypass flows on western slope streams, shutting off the Moffat Water Treatment Plant (WTP) during portions of the drought, and constructing infrastructure and pumping treated water from the South System into inefficient ditches for delivery and re-treatment by raw water customers. These types of emergency operations are inefficient, expensive tactics that do not provide an adequate permanent solution for the lack of water supply available to the Moffat WTP. Further, one of three treatment plants

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While trucking-only appears to be less costly than rail and truck, it appears unreasonably high rail and trucking costs inflated the cost estimates. A combined rail/truck haul method was costed by HDR at 24.4 cents per ton-mile for the rail component and 119 cents/ton-mile for the six miles of trucking, resulting in a total cost of $16.1 million. Boulder County's research indicates a truck-only method would cost approximately 17.7 cents per ton-mile, or about $9.3 million or 42% less than rail and truck. However, when compared to a national trucking cost average of just 26.6 cents per ton-mile, the HDR trucking cost component at 119 cents per ton-mile seems unreasonably high. This national average is based on three separate sources, including the U.S. Bureau of Transportation Statistics and the American Association of Railroads. In addition, the unit costs of a combined rail/truck haul operation as provided in the Borrow Haul Study are approximately 25 cents per ton-mile for rail and 120 cents per ton-mile for trucking materials up the remaining three miles to the dam site. Yet, national averages for railroad transport are about 3 cents per ton-mile per the Bureau of Transportation Statistics and the American Association of Railroads. Further, national trucking costs are 30 cents per ton-mile or less. Even allowing for some steep grades and 24 hour/day operations, the truck/rail costs in the Borrow Haul Study seem excessively high. 2. The current cost comparison does not adequately show costs for the pullouts or for road improvements from the rail siding to the dam. 3. There is no cost breakdown or itemization for the number of trucks to be rented/purchased/leased for the project, drive times between sites, fuel consumption, equipment maintenance, driver pay, liability insurance, maintenance on the county and state road systems along the haul routes, or construction and schedule delays due to inclement weather/accidents. 4. Clearing of vegetative biomass and its removal from the project site (either in the form of ash or as cubic yards/tons of trees) warrants a similar cost analysis and would add to the overall figures. 5. It is not evident from the documents provided that Denver Water looked at or inquired about occasional rail use, and has relied heavily on the cost of [24] Draft FERC Hydropower License Amendment Application, Atch. E-4: Borrow Haul Study at 7. 16 of 28	was unavailable during peak demand season when a minimum of two plants were needed to meet demands. If an unplanned outage had occurred at one of the remaining operational plants, service to customers would have been interrupted. Furthermore, demand in 2002 was 285,000 AF/yr and water supply was 345,000 AF/yr. Even with restriction programs in place, decreases in bypass flows, and other emergency measures, the North end of Denver Water's system, was still short on water supply. ***Comment #779-10*** *(ID 5078)**:*** *Overstatement of benefit project would have on reducing system vulnerability. Expanding Gross Reservoir under the Preferred Alternative would add only 10% to Denver Water's northern supply system, a marginal improvement on balancing the storage in the northern and southern delivery systems.* **Response #779-10:** System-wide vulnerability is one of the underlying needs of the Moffat Project. When there are planned or unplanned shutdowns in Denver Water's system that require more water to be treated at Moffat WTP than would otherwise have occurred, the severe existing shortage of water available to the Moffat WTP is further exacerbated. In other words, even routine maintenance activities that require operating Moffat WTP more frequently deplete further the limited amount of supply available in the Moffat Collection System. Denver Water's North and South raw water systems that provide water to the treatment plants are not connected. During periods of high demand, the raw water being provided to the Moffat WTP simply runs out because there is not a sufficient amount placed in storage. Additionally, since 90% of storage and

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application constructing new sidings as a reason for dismissing the rail option without providing any equivalent analysis of truck costs. 6. The revised analysis should also comply with the recently issued guidance for incorporating climate change impact analysis into NEPA processes.[25] How does the trucking-only option compare to rail and truck from a carbon emissions standpoint? There is also no air quality analysis comparing the types, quantities, and timeframes for emissions differentials between truck trips vs. rail vs. rail as an occasional option for hauling. 7. In sum, the Corps and FERC should require Denver Water reanalyze all the costs, impacts, and benefits of truck versus rail transportation, this time using the same methodology for comparing the two options, using at least the above-mentioned types of costs, and based on accepted industry standards for trucking and rail cost. f. Stream flow impacts. i. The Draft documents state that there are "moderate" stream flow impacts to upper tributaries of Fraser and Williams Fork rivers during average to wet years. But those impacts are up to 30% of total stream flow, which is a major impact. ii. In general, Boulder County is supportive of anything that benefits South Boulder Creek water flow. Thus, the County supports the concept of "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette as necessary but not in and of itself sufficient mitigation for aquatic impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam. With this in mind, effects on the South Boulder Creek catchment area downstream of the reservoir, both positive and negative, need further elaboration and clarification in the Draft documents, particularly the likely effects above versus below the South Boulder Canal Diversion. Also, the Draft documents' discussion of the Environmental Pool does not include a sufficiently detailed analysis of the associated hydrologic impacts. The maximum 75 cubic foot/second decrease in flows is not adequately analyzed. And statements that reducing peak flows is beneficial to aquatic habitats and species, that increasing winter flows is good for aquatic habitat, and that a larger pool size is good for aquatic habitat all may be false, depending on site-specific conditions, channel conditions and species requirements. g. Riparian and wetland area impacts. i. The Draft documents conclude that there are "moderate to major" cumulative impacts to riparian and wetlands areas on the Front Range area from agricultural water rights transfers. It does not make sense that these impacts will be greater than impacts on western slope streams, as reflected by statements like "cumulative impacts to aquatic resources in North Fork Ranch Creek (tributary to Fraser River) would be minor adverse." [25] Memorandum for Heads of Fed. Dep'ts and Agencies from Council on Envtl. Quality on Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (Feb. 18, 2010), *available at* http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf 17 of 28	80% of supply is provided by the South System, the raw water systems are currently severely imbalanced. This imbalance contributes to the North System's vulnerability and unreliability. Additionally, please refer to DEIS Section 1.4.4.1 Raw Water Availability to the Moffat WTP (System Reliability), that describes the potential for the Moffat Collection System to run out of water in a single dry year. The Corps believes the vulnerability issue in the North System is adequately described and justified in the DEIS. ***Comment #779-56*** *(ID 5077)**:*** *Overstatement of reservoir capacity needed. i. The DRAFT EIS cites a 30% "safety factor" in sizing the Gross Reservoir expansion, representing an additional 30,000 acre-feet of storage. This factor received only lukewarm support in the Harvey Economics report attached to the Draft FERC License Amendment Application. The Harvey report could not conclude that this factor is not excessive. That is, this conservative estimate may well result in a possible oversizing of the reservoir capacity needed. ii. The Draft documents also fail to adequately consider the impact of the additional storage that may become available in the Reuter-Hess and Chatfield reservoirs.* **Response #779-56:** The need for the 30,000 AF safety factor (i.e., Strategic Water Reserve) is described in Appendix A of the DEIS (Review of Denver Water's Integrated Resources Plan, p. 11 and Supplemental Evaluation of Denver Water Demand Projections, pgs. 13-15). As stated, the safety factor is intended to protect against a host of uncertainties, including the constriction of existing supplies, a downward revision of the estimated safe annual yield from prolonged drought, challenges to historic operations of Denver Water's water rights, changes in

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application ii. The Draft documents underestimate the total acreage of impacts to riparian habitat in the South Boulder Creek drainage.[26] The analysis of impacts to riparian habitat should include more than just direct impacts. Further, analysis of impacts in terms of "acres" does not provide an adequate assessment of a linear habitat. Rather, the analysis should be quantified in terms of "stream miles" (with an identified buffer). In addition, because of the unique values certain riparian areas may possess – all acres are not created equal – the analysis of impacts to this resource should include more detailed descriptions of impacts to unique riparian areas. These habitats are especially valuable to many riparian-centric species, such as bats, neotropical migratory birds, and their predators. h. Wildlife impacts. i. The Draft documents conclude that there are "moderate" cumulative effects to wildlife on the Front Range from loss of aquatic habitat from transfer of agricultural water rights. As with riparian and wetland areas, it does not make sense that these impacts will be higher than those on the western slope. ii. Elsewhere, the Draft documents conclude there would only be minor cumulative impacts to wildlife (Summary, page 45). This analysis is flawed and should be redone to consider the negative effects to wildlife including habitat from the additional development induced by the construction of the Preferred Alternative. iii. The analysis of impacts to bald eagles in the Draft EIS inaccurately concludes that there will be beneficial impacts to this species.[27] However, claiming beneficial impacts to bald eagles can only occur if there are no overall negative impacts to the species. The construction period (four years or more) under the Proposed Action will likely preclude bald eagle nesting and reduce foraging – a negative impact. iv. The Draft EIS analysis of potential impacts to Prebles Meadow Jumping Mouse should be revised to consider new information concerning potential Prebles existence at higher elevations, including those drainages feeding Gross Reservoir from the west. A new Determination of Effect should be undertaken that considers this new information.[28] v. The analysis of impacts to elk habitat in the Draft EIS from expanding Gross Reservoir states that there would be "no long-term impacts but impacts are considered moderate."[29] Any loss of elk winter concentration areas and severe winter range would be adverse and long term – that habitat will be gone forever. The Draft EIS does acknowledge the loss of some elk range; however, it does not acknowledge the loss of quality riparian habitats which, in some instances, is viable for elk calving. vi. The conclusions on impacts to fish habitat in the Draft EIS is inaccurate (Chapter 4, pages 313 and 335). Lacustrine species in South Boulder Creek will benefit; [26] Draft EIS, Exec. Summary at 28. [27] *Id.* at 31. [28] *See id.* at Chap. 3, pages 171 - 196; Chap. 4, page 290. [29] *Id.* at Chap. 4, page 273. 18 of 28	administration of water rights resulting in adverse impacts to Denver Water's supplies, catastrophic loss of facilities, delays in the development of new supplies, or higher than anticipated demand forecasts. The 30,000 AF safety factor is reasonable to help account for these risks. A safety factor is a commonly accepted practice for major water utilities. These risks are not accounted for in the firm yield modeling and calculations, nor are they considered in the water demand projections. The safety factor must be held apart from the derivation of the 18,000 AF/yr. shortfall to appropriately reflect the risks which occur outside the models, methods and procedures to calculate that need. The DEIS includes a discussion of both the Rueter-Hess Reservoir Project and the Chatfield Reservoir Reallocation Project in DEIS Section 5.3 as part of the cumulative effects analysis. ***Comment #779-92*** *(ID 5076)**:*** *Even assuming a valid purpose and need for the project, the Draft documents fail to establish a valid analysis of alternatives. Alternatives with less environmental impact were prematurely screened out of consideration due to a latent bias toward expanding Gross Reservoir and flawed cost-benefit analyses. a. Noncompliance with LEDPA requirement. In considering whether to issue a § 404 permit, the Corps must identify the least environmentally damaging practicable alternative ("LEDPA").[6] "No discharge shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have any other significant adverse environmental consequences."[7] Noncompliance with this LEDPA requirement is a sufficient basis for the Corps to deny a permit. The burden of proving*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application however, 1.25 miles of lotic habitat will be lost, including potential spawning habitat. i. Impacts on vegetation, including massive tree removal. i. The Preferred Alternative will directly and permanently impact several rare plant communities – including flooding out two "globally rare" plant communities identified by the Colorado Natural Heritage Program ("CNHP"), water birch/mesic forb foothills riparian shrub along South Boulder Creek and thinleaf alder/mesic forb riparian shrubland in Winiger Gulch. These communities are mapped by CNHP as Potential Conservation Areas ("PCA"). PCAs are generalized areas surrounding a specific plant community that are large enough to provide protection to the specific habitat occurrence. The plant community occurrence in Winiger Gulch PCA is rated by CNHP as an area of "moderate significance" and the community in South Boulder Creek PCA as "high significance." (About 1,835 feet of the length of Winiger Gulch within the PCA would be within the expanded reservoir area, about 43%of total length in PCA, and 2,575 feet of South Boulder Creek within the PCA, about 30% of total length in PCA.) The Draft EIS concludes that inundation of the central portions of these PCAs would have a moderate to major adverse impact, which is of concern to Boulder County. The Corps and FERC must ensure that the impacts are avoided, minimized, and mitigated to the maximum extent possible. ii. All of the direct impacts to vegetation from the Proposed Action would occur at Gross Reservoir in Boulder County, totaling approximately 508 acres of vegetation communities. These 508 acres are split between approximately 456 acres of permanent vegetation loss and about 52 acres of temporary impact. Most of the impacts would be permanent due to inundation from expanding Gross Reservoir and construction of the enlarged Gross Reservoir Dam. And most would occur in the ponderosa and ponderosa pine/Douglas fir communities. The phrase "small areas of wetland and riparian vegetation would also be affected" in the Draft EIS is inaccurate (Summary, page 29). The correct terminology is "small areas of wetland and riparian vegetation would be lost." The creation of "new" riparian areas, as described in Appendix M (Proposed Mitigation Plan) along the elevated pool level is either assured or a sufficient offset. The Draft EIS should require that the proposed replacement of riparian areas occur in areas that will be successful and provide the same habitat benefits as those areas being inundated. The Draft EIS should be revised to specifically describe the proposed revegetation/restoration plans, including the specific location for riparian restoration activities and the ratio of area of riparian vegetation restored to area lost. iii. The Draft EIS analysis does not include the loss of 1.25 miles of stream/riparian/fish habitat under the Proposed Action due to inundation.[30] This should be included as part of the impact analysis. iv. As with the question of truck versus rail transportation of construction materials to the site, on the subject of removing thousands of trees to expand the reservoir the [30] *Id.* at Chap. 4. page 5. 19 of 28	*compliance lies with Denver Water, and Denver Water has not met that burden, given the selection of the full expansion option as the Preferred Alternative. While the Corps is not legally required to select the environmentally preferred alternative, the Corps should reevaluate whether more environmentally preferable alternatives to expansion of Gross Reservoir are "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."[8] FOOTNOTES: [6] 40 C.F.R. § 230.10. [7] Id. [8] Id. at § 230.3(q) (definition of "practicable").* **Response #779-92:** Please see the response to Comment ID 5075. ***Comment #779-90*** *(ID 5075)**:*** *Bias towards expanding Gross Reservoir as a solution to projected needs. In 1954, Denver Water sited the dam to allow for an ultimate height of 465 feet but only built it to a height of 340 feet. It appears this original design for Gross Reservoir contemplating a larger capacity storage facility than actually built was given more weight as screening criteria than is appropriate or consistent with NEPA. This flawed approach resulted in premature elimination of less impactful alternatives before those impacts and associated mitigation costs could be fairly contrasted and compared. The exclusion of all alternatives not incorporating an expansion of Gross reflects a biased or even pre-ordained analysis of alternatives. The Corps should not permit developers to artificially constrain the Corps' alternatives analysis by defining the project's purpose in an overly narrow manner.[9] This is not a reasonable range of alternatives. Denver Water's "sunk cost" in the Gross Reservoir facility has already been adequately amortized several times over and therefore should not be a factor in the*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application Draft documents should be revised in light of recent CEQ guidance on incorporating climate change impacts in NEPA documents.[31] j. Socioeconomic impacts. i. The analysis and discussion of the socioeconomic impacts caused by the Preferred Alternative is insufficient, especially the permanent direct and indirect impacts to Grand County residents and Coal Creek Canyon residents. For example, the Draft documents state that there are moderate negative socioeconomic impacts to Front Range/Weld County communities from water rights transfers, but the associated discussion of cumulative or indirect impacts to the western slope is inadequate. k. Impacts due to growth induced by an expanded Gross Reservoir. i. NEPA allows for consideration of indirect effects "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[32] "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."[33] Under the terms of an existing contract between Arvada and Denver Water, if Gross is expanded, Arvada gets up to 3,000 acre-feet/year. According to recent research by the City of Golden, the Candelas proposal for developing the area of the Highway 72/93 intersection is short some 2,900 acre-feet of water, assuming full build-out. Arvada staff views the Moffat Project as its "single biggest infrastructure need."[34] Denver Water recently estimated Arvada's share of the cost of the Moffat Project at $90 million. Naturally, the Candelas owners and developers "strongly support" the expansion of Gross, as reflected in their one-paragraph comments on the Draft documents. In sum, it's no secret that additional water stored in Gross will go to serve additional development, most likely in areas along the mountain backdrop corridor between Boulder and Golden that deserve especially careful planning and protection. Consequently, the Draft documents must be revised to better elucidate the connections between permitting expansion of Gross and the development of Arvada and other Denver metro area communities. These revisions should spell out the likely increase in population, the impacts of this induced growth on local communities to include an estimate of the number of affected residents who live in Boulder County, Coal Creek Canyon, and Golden at a minimum. ii. The Draft documents should be revised to reflect the effects on climate change of additional induced growth along the Highway 93 corridor, due to the increase in emissions associated with increased population and jobs. [31] Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, *supra* note 25. [32] 40 C.F.R. § 1508.8(b). [33] *Id.* [34] *See, e.g.*, Letter to Corps, FERC, and Denver Water from Jefferson Center Metro. Dist. No. 2 (Mar. 5, 2010). 20 of 28	*analysis. The only legitimate factor in this regard is whatever environmental advantage having a dam in place that can hold more water will give. At a minimum, the Draft documents should be revised to plainly disclose that the original Gross Dam was built to accommodate an expansion commensurate with the one proposed, biasing the EIS result toward alternatives involving full expansion of the reservoir. FOOTNOTE: [9] See, e.g., Nat'l Wildlife Fed'n v. Whistler, 27 F.3d 1341, 1346 (8th Cir. 1994). Note: The Draft documents do not adequately address whether the Gross Dam site works for the additional six feet required to accommodate the Environmental Pool contemplated by Denver Water's IGA with the Cities of Boulder and Lafayette. More engineering feasibility analysis on this issue is necessary.* **Response #779-90:** The alternative screening process (Alternatives Screening Report, Corps 2007) did consider the other water sources (agricultural water transfer, conjunctive use and municipal reuse) in combination with storage components other than Gross Reservoir. These various water sources and 29 storage components from the "long list" passed the initial Screen 1A, as discussed in DEIS Section 2.1.2, Screen 1B. Two methods of acquiring agricultural water (ID 601) were reviewed: purchase or dry-year lease. It was assumed that the agricultural rights were available downstream of the Metro WWTP. Other locations, including the Arkansas River basin, were considered in Screen 1A; however, they were eliminated by the criterion logistics (LG)1, Must be within the State of Colorado and in the South Platte and mainstem Colorado river basins. The justification for this criterion, as stated in Table 2-1, is still valid: "Exploring options outside the South Platte and mainstem Colorado river basin would necessitate acquiring water rights from new filings, purchasing and transferring existing water

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application l. Recreational impacts i. The Draft EIS's analysis of impacts to recreation should include the loss of fishing, hunting, and kayaking from inundation of upstream water bodies.[35] Inundation of US Forest Service land will also eliminate some opportunities for hunting on these lands. ii. The Draft EIS states that under the Proposed Action "additional" recreation opportunities will be created as a result of an enlarged reservoir due to increased use.[36] For example, the additional shoreline may provide additional dispersed shoreline recreation opportunities such as additional fishing access. But this is inconsistent with Appendix M, Proposed Mitigation Plan (page M-14), which provides that Denver Water does not intend to change the current recreational opportunities or management of Gross Reservoir under the Proposed Action. The federal permits should include a condition of approval that there will be no net increase in the number of recreational visitors at Gross Reservoir beyond that approved in the current recreation plan. This condition should also specify that any changes in recreational opportunities that may cause increases in visitors should be coordinated with and approved by Boulder County via an IGA amendment. iii. The Draft EIS states that beyond the developed recreation areas defined in the Federal Energy Regulatory Commission (FERC) Gross Reservoir Management Plan, no additional developed recreation sites are planned. Because no additional infrastructure – e.g., parking areas, restrooms, etc. – would be constructed under the Proposed Action, the Draft EIS should disclose the potential adverse impact caused by overcrowding of visitor parking areas and facilities because of the improved shoreline opportunities attracting additional visitors to Gross Reservoir. Denver Water should include mitigation plans for potential overcrowding of developed recreation sites due to increased use from additional shoreline opportunities. iv. The Draft EIS claims that there will be "no long-term conflicts with the recreational guidelines, goals, or objectives identified in...the Boulder County Comprehensive Plan..." (Section 4.13.1.1). However, the Draft EIS does not discuss the impact of the planned Gross Reservoir expansion on the "plains to mountains" trail alignment proposed on the "County Trails Map," adopted as part of the Boulder County Comprehensive Plan. The proposed expansion of Gross Reservoir is inconsistent with this Comprehensive Plan designation and would require substantial reassessment of this proposed corridor. The expansion would not only affect the alignment of this trail where it runs adjacent to the reservoir, but also the alignment of the trail north and west of the reservoir. m. Inconsistency between the FERC document and the Corps documents. The FERC application discusses the Environmental Pool but the DRAFT EIS does not (it is included in the Preferred Alternative). Either document should describe the "tipping point" of needing more infrastructure to support the additional 6' dam rise. [35] See Draft EIS, Chap. 3, page 278. [36] *Id.* at Chap 4, page 370. 21 of 28	rights, and developing extensive new infrastructure to import the water. Obtaining water from the Gunnison, Yampa, White, North Platte, Rio Grande, San Juan/Dolores, or Arkansas river basins would be extremely difficult, if not impossible, in a timeframe consistent with the Purpose and Need." This is also a reasonable criterion to use because it did not eliminate a significant number of the water source options being considered in the screening. Numerous alternatives were configured in Screen 1b that do not include expansion of Gross Reservoir. Leyden Gulch Reservoir, plus several other storage components such as Ralston Reservoir, Spring Creek Reservoir, and Box Elder shallow aquifer were used to configure Project alternatives. Refer to Alternatives 6a and 6b, 7a and 7b, 8b, 9a and 9b, 10b – 10e, 11a, 12a, and 13b in Table 2-4. Each of these alternatives was legitimately screened out in Screen 1c or Screen 2 for various reasons. The multi-step process of screening a variety of water sources other than Moffat Tunnel water and storage components other than enlarging Gross Reservoir is justified and well-documented. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardizes Denver Water's ability to meet its present-day water needs. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application **4. Even assuming that a valid purpose and need exists, that full expansion of Gross Reservoir is the least environmentally damaging practicable option, and that the impacts are adequately described, the Draft documents fail to identify adequate mitigation for those impacts.** a. General notes on the mitigation plans Boulder County would like to see i. Boulder County agrees with the approach to mitigation described in the draft guidance on this subject published by the Council on Environmental Quality in February 2010. "The first step in mitigation is avoiding or minimizing harm."[57] "Mitigation is an important mechanism for agencies to use to avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with their actions."[58] ii. Mitigation measures must be binding. "Decisions to employ mitigation measures should be clearly stated and those mitigation measures that are adopted by the agency should be identified as binding commitments to the extent consistent with agency authority, and reflected in the NEPA documentation and any agency decision documents."[59] iii. Mitigation measures must include mechanisms for systematic accountability. "[I]mplementing agency NEPA procedures and guidance should be employed to establish procedures that create systematic accountability and the mechanisms to accomplish those goals."[40] The Corps and FERC have broad authority under NEPA to impose mitigation conditions on applicants. "Methods to ensure implementation should include, as appropriate to the agency's underlying authority for decisionmaking, appropriate conditions in financial agreements, grants, permits or other approvals, and conditioning funding on implementing the mitigation."[41] The final mitigation plan should specify money actually budgeted and manpower assigned and provide that the approved action cannot proceed until all adopted mitigation measures are fully resourced or the lack of funding is addressed in a NEPA analysis.[42] The Corps and FERC should require that all their conditions of approval are written into contracts furthering the approved action.[43] The mitigation measures required by the Corps and FERC must include specific details outlining which parties are responsible for ensuring the mitigation is implemented and which parties are charged with ensuring it is effective. iv. Mitigation plans must include robust monitoring procedures. "Implementing Federal agency actions and mitigation involves consideration of future impacts and conditions in an environment that is evolving and not static; therefore, monitoring [57] Draft Guidance for NEPA Mitigation and Monitoring, *supra* note 12 at § II (citing 40 C.F.R. § 1508.2). [58] *Id.* [59] *Id.* [40] *Id.* (citing 40 C.F.R. § 1507.3). [41] *Id.* at § II.A.3. [42] *Compare* 32 C.F.R. § 651.15(a)(5)(d). [43] *Compare id.* § 651.15(a)(i)(1); *id.* § 651 App. C. 22 of 28	into one defined purpose, since the multiple needs of the applicant are not "independent" but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water's ability to meet projected demand needs. Therefore, supplying water to the Moffat Collection System was appropriately used as a criterion for alternative screening. ***Comment #779-89*** *(ID 5074)**:*** *Flawed cost-benefit analysis. The Draft documents do not include adequate discussion of costs and benefits that reflect the full cost of the alternatives. Although a cost/benefit analysis is not required under NEPA, it is encouraged to fully evaluate the alternatives.[10] Full costs should include capital, operations and maintenance, and mitigation costs. Full benefits should include both the monetary value of saleable water as well as intangible benefits. Before issuing a Final EIS for this project, the Corps should require Denver Water to include a more robust cost/benefit analysis in the screening process, as further described below. FOOTNOTE: [10] "[A]n environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision." 40 C.F.R. § 1502.23.* **Response #779-89:** A benefit-cost analysis of the alternatives is not required nor is it needed. The monetary costs of each alternative are discussed and summarized in Chapter 2 (Section 2.9) and also described as part of the socioeconomics impact analysis included in the DEIS (Section 4.17). Estimated costs for each alternative include both the capital costs of construction as well as annual operations and maintenance costs. Impacts, which can be positive

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application can help decision-makers adapt to changed circumstances."[44] A monitoring program is essential to ensure mitigation measures are both actually implemented and ultimately effective. "Under NEPA, a federal agency has a continuing duty to gather and evaluate new information relevant to the environmental impact of its actions.[45] For agency decisions based on an EIS, the regulations require that, "a monitoring and enforcement program shall be adopted...where applicable for mitigation."[46] In addition, the regulations state that agencies may "provide for monitoring to assure that their decisions are carried out and should do so in important cases."[47] Monitoring plans and programs should be described or incorporated by reference in the agency decision documents."[48] v. The results of relevant monitoring must be available to the public without the necessity of first filing a FOIA request.[49] The Corps should include in the permit conditions provisions related to public access to the results of relevant monitoring.[50] "Public participation and accountability should be supported through proactive disclosure of, and access to, agency mitigation monitoring reports and documents."[51] Should monitoring reveal that any defined mitigation measures are ineffective such that significant adverse environmental effects could reasonably be expected to result, the Corps should include language in the Record of Decision requiring that must go back through the NEPA process to determine the resolution to the situation.[52] To define parameters for effectiveness monitoring, the Corps and FERC should at a minimum identify a source of expertise, use measurable and replicable technical parameters, conduct a baseline study before mitigation is commenced, use a control to isolate mitigation effects and importantly, provide timely results to allow the decision-maker to take corrective action if necessary.[53] b. Specific mitigation request: a plan to mitigate all construction impacts i. Neither FERC nor the Corps should approve any alternative expanding Gross Reservoir without conditioning that approval on binding transportation-related mitigation measures acceptable to all stakeholders. For the entire proposed route [44] Draft Guidance for NEPA Mitigation and Monitoring, *supra* note 12 at § II. [45] *See* 42 U.S.C. § 4332(2)(A). [46] 40 C.F.R. §1505.2(c). [47] 40 C.F.R. § 1505.3. [48] Draft Guidance for NEPA Mitigation and Monitoring, *supra* note 12 at § II.B. [49] *See* 40 C.F.R. § 1505.3(d). "Consistent with CEQ regulations, the FOIA requires agencies to make available, through 'computer telecommunications' (e.g., agency websites), releasable NEPA documents and monitoring results which, because of the nature of their subject matter, are likely to become the subject of FOIA requests." Draft Guidance for NEPA Mitigation and Monitoring, *supra* note 12 at § II.C (citing 5 U.S.C. § 552(a)(2); 40 C.F.R. § 1506.6(f)). [50] 40 C.F.R. 1505.3(d). [51] Draft Guidance for NEPA Mitigation and Monitoring, *supra* note 12 at § II.A.4. [52] *See* 32 C.F.R. § 651.15. [53] *See id.* App. C (g)(1-5). 23 of 28	or negative, are specific to each resource and are discussed throughout the various impact analyses included in Chapter 4 of the DEIS. A summary of the impacts to each resource for each alternative is provided in the DEIS. This would provide the information necessary for the Corps to make an informed decision on the permit application. ***Comment #779-55*** *(ID 5073)**:*** *Major capital costs were applied in Screen 1C along with Purpose and Need and "fatal flaws." This process is not consistent with the definition of Purpose and Need, which does not include "lowest cost" as either a purpose of the project nor as a stated need.* **Response #779-55:** An alternative is considered practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" (40 CFR 230 Subpart B). The determination of what constitutes an unreasonable expense should generally consider whether the projected cost is substantially greater than the costs normally associated with the particular type of project. It is important to emphasize, however, that it is not a particular applicant's financial standing that is the primary consideration for determining practicability, but rather characteristics of the project and what constitutes a reasonable expense for these types of projects that are most relevant to practicability determinations. The Corps conducted a review of the cost-screen threshold, as noted in the comment and referenced in the Alternatives Screening Report (Corps 2007) as Boyle Engineering 2005b. Five projects were selected for the comparative analysis: WGFP, Northern Integrated Supply Plan, Southern Delivery System, East Cherry Creek Valley Northern Project, and Aurora South Platte Project. The

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application on both county and state highways, this plan must at a minimum address temporary and permanent impacts to local and state roadways; traffic levels; traveler safety; access to homes during medical, wildfire, or other emergencies; noise, light, and air pollution; and recreational opportunities. ii. Federal regulations provide for "avoiding the impact altogether by not taking a certain action or parts of an action."[54] Regardless of what comes of the truck versus rail analysis, but especially if rail is not selected as the preferred method of transporting construction materials (primarily aggregate), the Corps and FERC should require Denver Water to pay for improvements to Highway 72, to include the addition of bike lanes on both sides of the right of way. iii. A detailed traffic mitigation plan is needed. Presently, both Highway 128 and Highway 93 are shown on the proposed haul route map. Highway 72 route would take traffic south and east on a possibly less direct route. Highway 72 would require sight distance improvements (reflected in the Mitigation Plan (App. M)). The traffic mitigation plan should include analysis to determine whether growth induced in the Arvada area as a result of expanding Gross Reservoir will necessitate new roadway construction in communities bordering Arvada. c. Specific mitigation request: a stream flow management plan acceptable to Grand County and Boulder County i. The Corps should allow no further dewatering of the Upper Colorado River basin via grant of a § 404 permit for this project unless such approval is conditioned on execution of a mandatory stream flow management plan that includes measurable performance standards[55],, ongoing monitoring mechanisms, and enforcement provisions satisfactory to Grand and Boulder County. Such a plan will provide for a more natural hydrographic cycle in Grand County (spring flushing flows, etc.). ii. "Mitigation commitments should be structured to include adaptive management in order to minimize the possibility of mitigation failure."[56] Continuing responsibility for a permit applicant beyond the compensation / mitigation / enhancement required at time of permit issuance may be a hurdle that Denver Water must surmount as an institution, but that is no reason that, e.g., adaptive management of the stream flow can't be a bridge over the uncertainties that remain after the Final EIS analysis. iii. The Corps should tie mitigation monitoring to the Corps and FERC's Environmental Management Systems.[57] [54] 40 C.F.R. § 1508.20(a). [55] Measurable performance standards were recently made binding in the 2008 Final Compensatory Mitigation Rule promulgated jointly by the Corps of Engineers and EPA. *See* 73 Fed. Reg. 19594 (April 10, 2008) ("Compensatory Mitigation Rule"). [56] Memorandum for Heads of Federal Departments and Agencies from Council on Environmental Quality, Draft Guidance for NEPA Mitigation and Monitoring, § II.A.4. [57] *See* Exec. Order No. 13423, 72 Fed. Reg. 3919 (Jan. 26, 2007), later codified into law by the 2009 Omnibus Appropriations Act signed on Feb. 17, 2009, and associated instructions for implementation, *available at* http://www.epa.gov/oaintrnt/documents/eo13423_instructions_508.pdf. 24 of 28	estimated Project costs ranged from $9,300/AF to $23,700/AF. The study concluded that a 4.0 cost threshold of $18,000/AF falls within the range of other Project costs, and that a broad range of potential alternatives remained for consideration after applying the cost screen. The study and the Corps concluded that it is a reasonable threshold. The remaining alternatives also represent a reasonable cross-section of types of alternatives (i.e., transmountain diversion, reuse, aquifer storage, and purchase of agricultural water rights). As stated in DEIS Section 2.1.3, the Corps decided upon a cost threshold of 5.0, instead of 4.0, to be more conservative and inclusive to ensure a reasonable range of alternative remained in the EIS analysis. The Corps finds this approach consistent with the Section 404 regulations for screening alternatives. ***Comment #779-9*** *(ID 5072)**:*** *The cost of the No Action alternative is not presented in the Draft EIS.[11] An effort must be made to estimate costs associated with strategies such as using a portion of the Strategic Water Reserve and enforcing mandatory restrictions to reduce demand. FOOTNOTE: [11] Draft EIS, Chap. 2, Table 2-5 Relative Cost of Project Alternatives.* **Response #779-9:** The DEIS quantifies the costs and impacts of the No Action Alternative to the extent possible; however, there are also a number of aspects of the No Action Alternative which are not given to quantification. DEIS Section 4.17 states that Denver Water would not incur any additional capital costs or operating costs as a direct result of the No Action Alternative. The analysis of impacts to Denver Water customers states that it is expected that Denver Water's System Development Charges (similar to tap fees) would remain at 2008 levels under the No Action

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application d. Specific mitigation request: conservation guarantees from water providers i. The Corps and FERC should require an adopted conservation plan for any water provider with a Denver Water contract that is at least as stringent as Denver Water's conservation plan. ii. As a condition of approval, the Corps and FERC should consider prohibit the use of any additional water stored in a newly expanded Gross Reservoir west of State Highway 93, in support of "preserv[ing] the open and undeveloped character of the land" as provided in the federal Colorado Northern Front Range Mountain Backdrop Protection Study Act of 2009. e. Specific mitigation request: in-stream flows below the dam – the "Environmental Pool" i. The Boulder City Council has approved a draft intergovernmental agreement between Boulder, Lafayette and Denver Water for creation of a 5,000 acre foot "environmental pool" which would require increasing the height of the dam another six feet over the 125' proposed in the Draft EIS. The pool would allow for increased in-stream flows to South Boulder Creek below the dam during winter and dry months. Though it lacks the detailed analyses of habitat benefits/impacts we'd like to see, Boulder County supports this idea in concept. We also believe such a pool could be established without the dam expansion proposed in the Draft EIS. That said, should the Corps grant a § 404 permit for any expansion of Gross Reservoir, the Corps should require Denver Water design and implement a project that support full implementation of the "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette, as necessary but not sufficient mitigation for impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam. f. Specific mitigation request: additional hydropower capacity i. The FERC application states that after final design Denver Water will evaluate modifications to increase the efficiency of the turbine equipment to determine whether such improvements would be economical (FERC application page A-3 and B-1 item 2). The only modification proposed in this FERC application is to add a pressure-releasing value ("PRV") to lower the inlet pressure in order to accommodate the increased head due to the dam water level rise. The addition of the PRV would improve operating efficiency, resulting in an additional 5 million kWh/year (an increase of 16.5%). If adding additional hydroelectric capacity beyond that provided by the PRV is feasible, why is it not evaluated in this FERC application? One reason seems to be that Denver Water sells power generated at Gross Reservoir to Xcel Energy under a power purchase agreement that limits generation capacity to the existing 8,100 kW.[58] The FERC application states that this agreement expires in 2027. The Corps and FERC should require Denver Water to explain why that power purchase agreement cannot be modified to allow additional capacity in light of the additional head generated by enlarging Gross Reservoir. [58] Draft FERC Application at B-6, Item 5-iii. 25 of 28	Alternative and that water rates would increase by between 3 and 7% annually through 2017. The qualitative costs are equally as important as the quantifiable costs. The data are not available to determine or calculate cost amounts. The fact that Denver Water's customers would experience a host of indirect costs as a result of the depletion of the Strategic Water Reserve and greater water restrictions is addressed in the cost evaluation included in Chapter 2 (Section 2.9). These costs are not quantified since they would depend on the specific levels of depletions and/or restrictions in any given year. ***Comment #779-16*** *(ID 5071)**:*** *Broad assumptions were used to measure the cost of early alternatives, such as assuming an "excessive cost" of five times the lowest-cost alternative. Why five? This methodology needs better justification.* **Response #779-16:** The cost screening conducted as part of Screen 1 in the initial alternatives development process is described in detail in the Moffat Project EIS Alternatives Screening Report (Corps 2007). The rough order-of-magnitude (ROM) capital costs for Screen No. 1C were based on unit costs developed for the major capital cost features. Bid abstracts, historical cost curves and data, and previous estimates for similar projects were relied on as resources for developing the unit costs. ROM capital cost estimates were based on the principal features associated with each Project alternative and the unit cost for each feature. However, there are additional items that would increase the cost to achieve full development of any alternative. Consequently, a Relative Development

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application g. Specific mitigation request: compensation for land lost to inundation i. Federal regulations allow for compensating for impacts "by replacing or providing substitute resources or environments."[59] Denver Water should provide compensation for the permanent loss of 456 acres of shoreline, tributary, and bank vegetation that would result from expansion of Gross Reservoir under the Proposed Action. In addition, should Gross Reservoir be expanded, under its existing contract with Denver Water Arvada will have more water to support development in the Highway 72/93 area. This increased population will put increased pressure on Boulder County parks and open space resources along the Highway 93 corridor. Preservation of parcels along the Highway 93 corridor could help mitigate the significant impacts to Boulder County residents as well as local plant and animal habitats. ii. This compensation should be accomplished through a replacement of land of at least equal habitat significance on publicly owned forested lands. Priority for lands identified for compensation should be given to areas adjacent to US Forest Service land or Boulder County-owned parcels (if lands suitable for compensation are adjacent to county open space properties). Suitable parcels include, in order of priority (1) parcels within Boulder County, (2) the parcel bordering the eastern edge of Highway 93 immediately north of the parcel owned by the State Land Board, (3) the parcel owned by the State Land Board, aka "Section 16," (4) Leyden Gulch, and (5) other parcels north of Highway 72 that will aid in achieving the goals of the Rocky Flats National Wildlife Refuge, the Front Range Mountain Backdrop project, and the City and County of Boulder's efforts to create an urban buffer between Boulder and Jefferson counties to mitigate growth-related impacts, such as degradation to air quality and viewsheds as well as increased traffic congestion on local roads. iii. Boulder County is willing to work with Denver Water in determining suitable replacement ratios and to also identify areas suitable for offsetting the loss of vegetation communities. Vegetation clearance offsets should be determined by using a ratio of the area to be conserved versus the area to be cleared. This ratio should be determined using indicators of vegetation condition and significance. At a minimum, a 2:1 ratio should apply to areas with patches of native vegetation, to 5:1 for areas of intact vegetation. iv. Most of the riparian vegetation impacts are result of inundation of inlets to the reservoir (4.08 total acres, inundation of 2,600 feet of South Boulder Creek and 2,350 feet of Winiger Gulch above the reservoir). Riparian vegetation is a very limited resource and thus difficult to mitigate completely, necessitating a detailed mitigation plan for this area. Appendix M only provides proposed mitigation for loss of riparian vegetation (four acres) and wetland resources (1.95 acres) along the elevated pool level. However, the Draft EIS (including Appendix M) does not provide for replacement of the remaining vegetation communities permanently lost due to inundation. The creation of "new" riparian areas, as described in the Proposed Mitigation Plan (Appendix M), along the elevated pool level is neither [59] 40 C.F.R. § 1508.20(e). 26 of 28	Cost (RDC) was developed for each Project alternative, which represents a cost value that more closely reflects the completed Project cost. The RDC was estimated as the sum of the ROM capital costs plus a 50% factor for other associated costs such as appurtenant Project features, permitting, engineering, legal, administrative, and contingency items. Comparisons were made with other projects for which planning-level cost estimates have been prepared. In addition, the Corps' third-party consulting team made comparisons with other projects for which planning level cost estimates have been prepared. The results of this review are presented in a Technical Memorandum, "Review of Screen No. 1 Supplemental Cost Information" (Boyle 2005). Based on those examples, the unit capital cost estimate and RDC method provides a reasonable estimate of the total Project cost. The RDC extends the capital cost estimate to a more appropriate total Project cost at this early stage of Project development and screening. Use of a higher or lower RDC factor would not alter the outcome of Screen 1C because the RDC factor was uniformly applied to each alternative. Therefore, while use of the RDC factor provides a more representative estimate of total Project cost, it does not play a factor in the results of Screen 1C. The resulting RDC estimates were converted to a dimensionless, relative cost index by expressing each estimate in terms of the estimated least cost alternative. The relative cost index was calculated as a multiple of the Project alternative with the lowest RDC. The Project alternatives were ranked according to their associated relative cost index. The Corps decided upon a cost threshold of 5.0 to be conservative and more inclusive in the cost screen, while ensuring that a reasonable range of

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application assured nor a sufficient offset to the permanent loss of over 450 acres of vegetation communities, including areas determined to have high value. v. Boulder County opposes Denver Water purchasing credits from a wetland mitigation bank outside the South Boulder Creek watershed. Appendix M (Proposed Mitigation Plan) provides two options to compensate for the loss of 1.95 acres of wetlands under the Proposed Action. One option would be for Denver Water to purchase sufficient credits from an approved wetland mitigation bank. Denver Water's first attempt at replacing lost wetlands should occur within the Gross Reservoir expansion area, or greater South Boulder Creek watershed in Boulder County. h. Specific mitigation request: compensation for impacts to wildlife i. Federal regulations allow for rectifying impacts by "repairing, rehabilitating, or restoring the affected environment."[60] The Draft documents currently make no mention of any sort of mitigation action for loss of big game habitat. Boulder County has concerns regarding mitigation for the loss of potential elk habitat (vegetation communities). Every effort should be made to retain elk winter concentration area, severe winter range habitat, and the potential elk calving locations in riparian areas in the proposed Gross Reservoir expansion area. ii. The Corps and FERC should impose restrictions for when forested areas are cleared to avoid nesting birds and wintering elk.[61] i. The Corps and FERC should require Denver Water commit to a management plan for all affected forested area in the Gross Reservoir storage basin (to be further defined). i. The Draft EIS is nearly silent on this issue. The FERC License Amendment Application Project No. 2035 alludes to an existing Forest Management Plan on page E-7 and Denver Water's intent to developing a forest treatment plan "...in cooperation with the USFS and other stakeholders in an on-going effort separate from this FERC process." ii. The Corps and FERC should require Denver Water commit to a forest restoration/wildfire mitigation program covering all affected forested area in the Gross storage basin. A firm commitment to time, funds, equipment and other resources, as well as a schedule for preparing and completing the plan within the Gross Reservoir basin that involves all stakeholders and is at least initiated concurrently with any enlargement of Gross Reservoir while site disturbance and equipment are already in the area should be an approval condition for federal permitting. iii. The restoration plan should be a collaborative effort with area property owners; fire protection districts; Colorado State Forest Service; USFS; Boulder County Parks & Open Space, Land Use, and Transportation Departments and in accordance with the Front Range Fuel Treatment Partnership Roundtable guidance. (The USFS, CSFS and Denver Water are all Roundtable members.) [60] *Id.* § 1508.20(c). [61] See Draft EIS, Chap. 4, page 273. 27 of 28	alternatives are maintained in the EIS that would meet the Project Purpose and Need, as well as comply with the requirements of the Section 404 regulations (Boyle 2005). The least costly alternative was found to be Alternative 1a with an RDC of $81.6 million. For Alternative 1a, the cost is expressed per AF as $4,500/AF of firm yield. The cost-screening threshold was therefore five times this value, or $22,500/AF of firm yield. Project alternatives with relative cost indices less than 5.0 were carried forward, whereas alternatives with cost indices greater than 5.0 were not considered to be practicable and were eliminated from further evaluation. ***Comment #779-88*** *(ID 5070)**:*** *Similar EIS documents prepared by the Corps and the Bureau of Reclamation in Colorado over the past ten years have applied widely different cost methods. For example, the following four major recent EISs based cost on different factors, including firm yield, average annual yield, and storage capacity. This variation suggests a history of inconsistent assumptions on the true cost of such projects, making it difficult to compare the cost-effectiveness of any one project, including the alternatives in the Moffat Draft documents. 1. Windy Gap Firming Project: total storage unit cost based on a weighted average of costs for each component, including capital costs for pipelines, 30% contingencies for construction and for design, and 5% interest over 50 years 2. Northern Integrated Supply Project ("NISP"): capital costs included but not operations, maintenance, or pumping costs for 19 original alternatives; Preferred Alternative feasibility cost included capital and annual operations and maintenance (fixed as 0.5% of construction cost), but not mitigation costs 3. Rueter-Hess Reservoir: costs not applied until second level screening; average annual yield costs only provided*

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	Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application iv. The restoration plan should address prevention of ad hoc off-road vehicle trails where none existed before as well as appropriate actions related to the mountain pine beetle. j. Specific mitigation request: compensation for construction impacts to Walker Ranch Open Space visitors i. The Draft EIS should be revised to include specific mitigation to visitors of this open space. Construction impact mitigation identified in the Draft EIS should include restrictions on hours/periods (e.g., weekdays and daylight hours only) of construction.[62] [62] *Id.* at Chap. 4, page 364. 28 of 28	*for two reservoir sizes considered; operations and maintenance and power costs converted to present worth (5% interest over 50 years) and included with capital costs, but average annual yield costs did not include operations and maintenance costs 4. Moffat Draft EIS: costs include capital cost and present worth operations and maintenance; mitigation costs do not seem to be included* **Response #779-88:** The costs of each Moffat Project EIS alternative have been calculated on the same basis and in a consistent manner. Therefore, the costs of the Moffat Project alternatives are directly comparable to one another. If the costs of Moffat Project alternatives are similarly prepared, and if the cost categories and estimation methods are appropriate for the Moffat Project, they are suitable for the purposes of this EIS. ***Comment #779-87*** *(ID 5069)**:*** *The mitigation information available in the Draft documents is not adequate for costing purposes and should be supplemented and included in the cost screening process. 1. Although compensatory mitigation may not be used as a method to reduce impacts in the evaluation of the LEDPA for the purposes of requirements, "[p]roposed mitigation should be considered throughout the NEPA process."[12] The Corps and FERC must consider reasonable alternative mitigation measures in the EIS analysis.[13] "The EIS should, and the Record of Decision must, describe those mitigation measures that the agency is adopting and committed to implementing."[14] However, mitigation costs should be identified to be sure they are affordable and can actually be implemented. FOOTNOTES: [12] Memorandum for Heads of Fed. Dep'ts and Agencies from Council on Environmental Quality, Draft Guidance for NEPA Mitigation and*

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		Monitoring § II (Feb. 18, 2010). [13] Draft Guidance for NEPA Mitigation and Monitoring § II.A.1, supra note 12 (citing 40 C.F.R. §§ 1502.14(f), 1508.25(b)(3)). [14] Id. (citing 40 C.F.R. § 1505.2(c)). **Response #779-87:** Denver Water's Conceptual Mitigation Plan is contained in FEIS Appendix M. ***Comment #779-15*** *(ID 5068)**:*** *The message from the Draft documents that mitigation will "possibly" be included in the Final EIS, and that Denver Water is pursuing additional environmental "enhancement" opportunities separate from the EIS process is unsatisfactory. In present form, the Draft documents do not identify all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem, as required by 40 CFR Part 230.12.* **Response #779-15:** The Corps will include specific mitigation measures that are enforceable through a Section 404 Permit, if issued. Colorado Department of Public Health and Environment (CDPHE) will also include specific water quality mitigation measures that are enforceable through a Section 401 Certification. The U.S. Fish and Wildlife Service (USFWS) will include specific requirements to protect threatened and endangered species that are enforceable through a Biological Opinion. In addition, Denver Water has entered into three agreements that would enhance the existing environment and provide additional protections: CRCA, Learning by Doing (LBD) Cooperative Effort, and Fish and Wildlife Enhancement Plan, copies of which are provided in FEIS Appendix M. Each of these plans will be implemented through permanent agreements between the parties. The Corps will consider these

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		agreements, along with all "reasonably foreseeable future actions" in its decision process regarding the proposed Moffat Project. These agreements are not intended to mitigate the impacts of the proposed Project; instead, the purpose is to improve existing conditions of aquatic environments in the Colorado River Basin should Gross Reservoir be enlarged. ***Comment #779-85*** *(ID 5067)**:*** *Premature elimination of alternatives involving greater hydropower generation. Alternatives involving expansion of Gross Reservoir that result in adding more than 5 megawatts of hydropower were prematurely screened out. As proposed, the project qualifies for expedited FERC processing as a major project 5MW or less, which allows for streamlined or eliminated requirements for construction schedules, statements of costs and financing, project operations and resource utilization plans, and the like. Despite Denver Water's contention that hydropower generation is an ancillary benefit from the water storage functionality of Gross Reservoir, expedited processing and some additional cost are not enough justification to forego the substantial benefit of additional clean power for the region. This is especially true in light of the claim Denver Water has made to Boulder County that the power generation aspect of the project preempts the County's H.B. 1041 authority over the project. The Corps and FERC should require further analysis on the costs and benefits of adding substantial hydropower, either in a reformulated statement of purpose and need, a recalibrated analysis of alternatives, or as a form of regional impact mitigation. Additional hydropower would help offset the indirect and cumulative impacts on air pollution, climate change, and demand for power caused by the additional development induced by an enlarged Gross Reservoir.*

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		Response #779-85: Pump-back operations were not analyzed because increasing hydropower generation is not a component of the Purpose and Need of the Moffat Project. Hydropower generation at some of Denver Water's water supply facilities is an ancillary benefit derived from the operation of the facilities for water supply purposes. Expansion of Gross Reservoir requires an amendment to the existing license not because hydropower is or needs to be increased, but because the hydropower facilities, including the dam and reservoir, would be substantially modified. FERC does not mandate that license amendments increase hydropower capacity. As part of its FERC license amendment application, Denver Water analyzed whether an increase in capacity above the existing nameplate rating would be feasible. Increasing capacity would entail major modifications and/or complete replacement of the powerhouse equipment and the switchyard equipment. Having recently purchased and installed the current facility in 2007, Denver Water determined that an increase in capacity is not economically feasible at this time. If the Moffat Project is permitted, after final design, Denver Water would determine whether modifications to increase the operating range of the existing turbines would be economical. ***Comment #779-84*** *(ID 5066)**:*** *The proposed modifications to the hydroelectric project would not increase the total installed capacity of the project, would not result in an increase in the installed nameplate capacity of 2 megawatts (MW) or more, and would not increase the hydroelectric project's maximum hydraulic capacity by 15% or more.[15] Therefore, this license amendment application is for a "non-capacity-related amendment" per 18 CFR § 4.210(b). FERC states that up to 5 more kWh could be produced (16.5% increase) with minor modifications to the existing*

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		system, and implies that this is part of the Preferred Alternative.[16] Beyond that modest increase, however, Denver Water's FERC license amendment application concludes that modifications to the existing hydroelectric system to increase capacity beyond the existing 8,100 Kw "nameplate' would require major modifications to the system and would not be economically feasible at this time.[17] However, no cost comparison is provided in the FERC application or in the Draft EIS to substantiate this conclusion. The Corps and FERC should require Denver Water to explain the cost basis for this conclusion. FOOTNOTES: [15] Draft FERC License Amendment Application, page 1. [16] See id., Atch. E-5. [17] Id., Atch. B, page B-1. **Response #779-84:** Pump-back operations were not analyzed because increasing hydropower generation is not a component of the Purpose and Need of the Moffat Project. Hydropower generation at some of Denver Water's water supply facilities is an ancillary benefit derived from the operation of the facilities for water supply purposes. Expansion of Gross Reservoir requires an amendment to the existing license not because hydropower is or needs to be increased, but because the hydropower facilities, including the dam and reservoir, would be substantially modified. FERC does not mandate that license amendments increase hydropower capacity. As part of its FERC license amendment application, Denver Water analyzed whether an increase in capacity above the existing nameplate rating would be feasible. Increasing capacity would entail major modifications and/or complete replacement of the powerhouse equipment and the switchyard equipment. Having recently purchased and installed the current facility in 2007, Denver Water determined that an increase in capacity is not economically feasible at this time. If the Moffat Project is permitted, after final design,

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		Denver Water would determine whether modifications to increase the operating range of the existing turbines would be economical. ***Comment #779-8*** *(ID 5065)**:*** *The Draft documents do not discuss increasing hydropower production to allow pump-back for release during high-use periods. The Draft documents should include a statement on whether this concept showed up in earlier alternatives and, if so, why it was dismissed.* **Response #779-8:** Pump-back operations were not analyzed because increasing hydropower generation is not a component of the Purpose and Need of the Moffat Project. Hydropower generation at some of Denver Water's water supply facilities is an ancillary benefit derived from the operation of the facilities for water supply purposes. Expansion of Gross Reservoir requires an amendment to the existing license not because hydropower is or needs to be increased, but because the hydropower facilities, including the dam and reservoir, would be substantially modified. FERC does not mandate that license amendments increase hydropower capacity. As part of its FERC license amendment application, Denver Water analyzed whether an increase in capacity above the existing nameplate rating would be feasible. Increasing capacity would entail major modifications and/or complete replacement of the powerhouse equipment and the switchyard equipment. Having recently purchased and installed the current facility in 2007, Denver Water determined that an increase in capacity is not economically feasible at this time. If the Moffat Project is permitted, after final design, Denver Water would determine whether modifications to increase the operating range of the existing turbines would be economical.

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		Comment #779-81 *(ID 5064)**:*** *Premature elimination of alternatives involving greater conservation. The assumption water demand will "harden" – i.e., conservation gains will decrease with time – is questionable and should be removed as a criterion for comparing alternatives.[18] Recent conservation successes belie the assumption; from 2001 to 2008 Denver residents achieved an 18% reduction. FOOTNOTE: [18] 18 See, e.g., Statement of Mary Ann Dickinson, Exec. Dir., Alliance for Water Efficiency, March 31, 2009 Hearing before the Senate Committee on Environment and Public Works, Subcommittee on Water and Wildlife, EPA's Role in Promoting Water Efficiency ("Field experience suggests that as technology changes and new products appear in the marketplace, there will always be additional conservation potential") and Vera McCaig, Office of Water Conservation and Drought Planning, Colorado Water Conservation Board, presentation on Water Conservation and Demand Hardening, available at http://www.greatwesterninstitute.org/presentations/berthoud06/forum/McCaig-DemandHardening-Dec06.pdf. Once projections of future demand are corrected based on updated population and economic data, the Corps and FERC should mandate better evaluation of conservation-based alternatives to meet that demand. Revised growth projections could negate the need for the project at all, or negate the need to designate expansion of Gross Reservoir as the preferred alternative.* **Response #779-81:** "Demand hardening" is caused through conservation. As customers become more efficient in their water use, their ability to reduce consumption during a drought under the same set of drought restrictions becomes impaired. A simple example is lawn watering efficiency. Denver Water's Stage II

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		drought restrictions are designed to reduce lawn watering significantly but keep lawns alive. If customers become more efficient in their lawn watering through conservation, the closer their use is to just keeping lawns alive; therefore, they will not be able to reduce as much in a drought. If the conservation savings are used to serve new customers, then the water is not available to buffer against a future drought. Conservation Conservation is part of the solution for water supply projects. The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all-conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation so water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. Water Supply Demand Changes Additional data was collected and analyzed for socioeconomics in FEIS Section 5.19. The socioeconomic analysis included an update of

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		demand projections through reviewing the data used in Denver Water's current model and reviewing current population projection data DRCOG, DOLA or other agencies, as available, to examine any differences in projected population numbers or rates between the older data and the current data. ***Comment #779-79*** *(ID 5063)**:*** *Many Denver Water municipal customers do not have conservation plans on file with the Colorado Water Conservation Board ("CWCB"). Until these water customers come into compliance with state law, the Corps should withhold a § 404 permit to build a bigger dam as a way to protect supply. This is especially true with respect to Arvada, which does not have a state-approved conservation plan. Just because Arvada contracted with Denver Water for 3,000 acre-feet/year of Moffat project water does not inexorably lead to the conclusion Gross must be built. That is the tail wagging the dog.* **Response #779-79:** All of Denver Water's distributors follow Denver Water's State-approved conservation plan and customers are eligible for the same rebates and other incentives provided by Denver Water to Denver Water customers. In other words, if one receives treated water from Denver Water, one is subject to the same conservation rules and rebates as those living within the City and County of Denver. Denver Water is planning to update its conservation plan with the State and the distributors will be listed individually so readers will be able to see which water providers are covered by Denver Water's conservation plan. Arvada submitted a conservation plan to the State of Colorado and it was approved in September of 2012.

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		Comment #779-78 *(ID 5062)**:*** *Agricultural-Urban Cooperative Water Sharing Agreements were not evaluated, which could be a good small-scale alternative to increase yield of the Moffat system.* **Response #779-78:** The Corps conducted a detailed alternatives screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The alternatives screening process did consider the other water sources (agricultural water transfer, conjunctive use and municipal reuse) besides transmountain diversions in combination with storage components other than Gross Reservoir. These various water sources and 29 storage components from the "long list" passed the initial Screen 1A, as discussed in DEIS Section 2.1.2, Screen 1B. Two methods of acquiring agricultural water (ID 601) were reviewed: purchase or dry-year lease. It was assumed that the agricultural rights were available downstream of the Metro WWTP. ***Comment #779-77*** *(ID 5061)**:*** *Failure to compare the homeland security pros and cons of different alternatives. The Draft documents do not communicate how well different alternatives address national security concerns. Indeed, the entire Moffat system appears vulnerable to human-caused disasters, including terrorism. Denver Water's failure to address this aspect of the project is especially problematic given its alleged goal of reducing system vulnerability. By this metric, none of the alternatives fully address the purpose and need. The Corps and FERC should mandate a comparison of security measures that would be necessary for*

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		each of the alternatives, factoring in these costs to the screening process. **Response #779-77:** Denver Water is continually engaged in efforts to protect against actual or potential threats to all of its critical infrastructure and key resources and has implemented security program initiatives to include vulnerability assessments of its facilities. Denver Water's security program includes a significant level of recurring funding and implementation of recommended physical security improvements. Additionally, Denver Water regularly participates with local, State, and Federal agencies in training and exercises to prepare for responding to any adverse actions that may occur. ***Comment #779-80*** *(ID 5060)**:*** *Note: Boulder County does not support any alternative involving a reservoir at Leyden Gulch. Areas north and south of this location along the Highway 93 corridor have been preserved by Jefferson County and the City of Boulder to protect open space, wildlife, prairie ecosystems, and the mountain backdrop as viewed from points east. Construction of Leyden Gulch Reservoir would compromise the longtime efforts of many to preserve the Front Range Mountain Backdrop, "a unique ecological system not found elsewhere in Colorado."[19] FOOTNOTE: [19] Front Range Mountain Backdrop Task Force, Front Range Mountain Backdrop: Phase 2 Final Report: Executive Summary i (1998) (prepared by ERO Resources). "In ecological terms, the Backdrop is a regional ecotone (transition area) where plant and animal communities of the Great Plains meet the foothills of the Rocky Mountains. The result is a diverse assemblage of plants, animals, geologic features, and scenic beauty near the rapidly growing Front Range urban corridor." Id.*

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		Response #779-80: The Corps notes the comment. The Corps considered the effect of the alternatives on the visual setting and overall landscape (see Section 4.15 of the FEIS). Visual impacts as a result of a proposed Leyden Gulch Reservoir under Alternative 1c were disclosed in Section 4.15.2 of the Draft EIS. Visual impacts were evaluated based on the change in visual setting and context at the proposed reservoir site, and user sensitivity to visual change. ***Comment #779-76*** *(ID 5059)**:*** *Even assuming a valid purpose and need for the project and that the Preferred Alternative is the least environmentally damaging practicable option, the impacts are not adequately analyzed and described in the Draft documents. a. Overall inadequacy. The Draft documents do not provide sufficient information to evaluate whether the grant of a § 404 permit will cause or contribute to significant degradation of the waters of the United States.[20] Under the Guidelines, effects contributing to "significant degradation" considered individually or collectively include significantly adverse effects on: human health or welfare, taking into consideration recreational, aesthetic, and economic values; aquatic ecosystem diversity, productivity, and stability; and life stages of aquatic life and other wildlife dependent on aquatic ecosystems, taking into consideration fish and wildlife habitat. FOOTNOTE: [20] 40 C.F.R. § 230.10(c).* **Response #779-76:** The impacts analysis for all resources was based on available data from appropriate scientific literature and agency sources, PACSM results, well established concepts in the resource disciplines, industry standard methodologies and protocols, and professional assessments by senior scientists. Based on comments made by various agencies and

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		the public on the DEIS, supplemental analysis was conducted on various resources (e.g., socioeconomics, aquatic biological resources, and wildlife) for the FEIS. This supplemental analysis provided more empirical data that the Corps will use as a basis for making a Federal decision on the Project. ***Comment #779-75*** *(ID 5058)**:*** *Failure to analyze other reasonably foreseeable projects together. "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."[21] The purpose and need, alternatives, impacts, and mitigation of the Moffat Collection System expansion and Windy Gap Firming Project should be analyzed together, as both result in further dewatering of the Colorado River headwaters. Failing to do so runs the risk of authorizing unacceptable cumulative effects on water quality as well as over-allocation of water resources, particularly in Grand County on the western slope, but also in Front Range communities.[22] FOOTNOTES: [21] 40 C.F.R. § 1508.7 (definition of cumulative impacts). [22] See comments of Larry Svoboda, Environmental Assessment Director at EPA, quoted in Mark Jaffe, Surge of Water Projects Show Little Coordination, DENVER POST, April 26, 2009.* **Response #779-75:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions

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		occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the Colorado-Big Thompson (C-BT) Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. ***Comment #779-74*** *(ID 5057)**:*** *Mid-term impacts characterized as "temporary." Recognizing that construction is typically considered a temporary phenomenon, the Preferred Alternative is projected to take at least four years to complete. For those who frequent or live in the area, especially Coal Creek Canyon visitors and residents, a 49-month construction period is not "temporary." Impacts may be short-term in a geological time-scale, but not in the life of certain animal species or*

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		the humans living there, using the roads, or visiting Walker Ranch Open Space or the USFS lands surrounding Gross Reservoir. The Draft EIS analysis of temporary noise and visual impacts to wildlife and visitors to Boulder County lands due to construction-related activities must be strengthened. **Response #779-74:** Noise and visual impacts to wildlife and people as a result of implementing the action alternatives or No Action Alternative were evaluated in DEIS Sections 4.12 and 4.15, respectively. In summary, short-term visual effects would occur in construction staging areas, stockpile areas, and other disturbed areas until reclamation efforts lessened visual contrasts. Major, permanent visual impacts would occur from the auxiliary spillway and quarry site. Temporary displacement of wildlife and nesting birds due to noise may occur during construction. The Project would comply with all applicable State and Federal air quality rules, and would cooperate with the CDPHE Air Pollution Control Division (APCD) in ensuring compliance. CDPHE is the State agency responsible for ensuring that Colorado attains, maintains, and enforces the National Ambient Air Quality Standards (NAAQS). Through the APCD construction permit process and the conformity determination process, the State regulates pollutant emissions that have the potential to endanger public health and welfare. For purposes of EIS analysis, the Corps assumes construction equipment used by the contractors would function as designed and conform to applicable noise emission standards. Denver Water would comply with all applicable noise ordinances and work with Boulder County to identify reasonable and feasible noise abatement measures for the Project construction period.

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		An additional mitigation measure has been added to FEIS Section 5.17 to address reclamation of the quarry site. The proposed quarry site would be primarily located on USFS land; therefore, Denver Water would work closely with the USFS to ensure appropriate reclamation of this site and any alternative quarry sites. The location of the quarry is illustrated on DEIS Figure 2-3 and details regarding the operation of the quarry are provided in DEIS Section 2.3. Visual impacts from the quarry at Gross Reservoir are discussed in DEIS Section 4.15.1. Blasting for excavation and construction at the Gross Reservoir Dam would create relatively minor shock waves, and may cause slight vibrations to be felt in the nearby area. The blasting vibrations would not affect groundwater levels or the aquifers from which the wells draw groundwater. Studies of blasting effects at other sites have shown that the vibratory shock waves generally do not have any effect on water wells. However, some studies have noted the possibility that if there were an old or poorly constructed well located within 300 feet of the blasting zone, the blasting vibrations could cause corrosion-weakened pipe in the well to bend or collapse. Other studies have noted that blasting vibrations could cause a slight agitation of the well water or water in rock fractures near the well to surge, which could cause a temporary suspension of fine grained sediment in the well. For wells very near the blasting, this shaking could cause the well water to appear slightly turbid for a short time until water from the well bore is flushed out. There are no known residences or water wells within 300 feet of the dam. Thus, there is not likely to be any effect on water wells in the area due to the blasting needed to raise the dam at Gross Reservoir.

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		Comment #779-73 *(ID 5056)**:*** *Impacts on Boulder County open space. The conclusion in the Draft EIS that there would be no impact to Boulder County parks and open space properties is inaccurate.[23] Gross Reservoir is bordered by Walker Ranch Open Space to the east, which should be reflected in Figure 13.13-1 ("Recreation Gross Reservoir"). The proposed action will have a detrimental impact on the natural and human environment at Walker Ranch. FOOTNOTE: [23] Draft EIS, Exec. Summary at 37.* **Response #779-73:** Denver Water's Conceptual Mitigation Plan is contained in FEIS Appendix M. ***Comment #779-72*** *(ID 5055)**:*** *Although the proposed expansion will not cause a direct loss of county open space land, adverse indirect impacts to Walker Ranch and its users will include noise, dust, truck traffic, visual impacts, and impacts to trail users and fisherpersons on South Boulder Creek.* **Response #779-72:** Visual and other short-term effects to the area adjacent to an expanded Gross Reservoir were discussed in the DEIS, though Walker Ranch was not specifically mentioned. Short-term impacts resulting from construction traffic were mentioned on DEIS pages 4-370 and 4-392. Visual impacts associated with a higher dam were addressed on DEIS page 4-403. Impacts to the area surrounding Gross Reservoir, including those referenced in the DEIS, would apply to Walker Open Space. ***Comment #779-71*** *(ID 5054)**:*** *The limited discussion of the impacts from construction activities on Walker Ranch Open Space in Section 4.13 does not fully reflect the fact that*

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		views from Walker Ranch will be affected during construction, as will the experience of being in open space. **Response #779-71:** Topography, vegetation and distance from the Project site reduce the level of visibility from key viewpoints at Walker Ranch Open Space. Visibility from this property has been further evaluated and the results of this analysis presented in FEIS Section 5.17.1.1. ***Comment #779-70*** *(ID 5053)**:*** *The Draft EIS states that, "[A]ll impacts to recreation uses would be temporary…" While this may be true of noise and construction impacts, changes to the viewshed from a larger dam at Gross Reservoir will be permanent and the Draft documents should reflect that.* **Response #779-70:** Visual changes resulting from the Project are not expected to change the overall setting for recreational use or the viewshed at Gross Reservoir. For most users, the reservoir itself, shoreline areas and developed use areas would retain a similar character to what exists today. For this reason, no adverse long-term impacts on recreational resources were identified. ***Comment #779-69*** *(ID 5052)**:*** *Construction-related impacts. The description of the construction impact area in the Draft EIS is not sufficient and needs to be redone (Chapter 4, page 337). Light, noise, trucks, and dust will exceed the immediate construction site at Gross Reservoir. These impacts will carry across the reservoir and will impact visitors of Boulder County parks and open space lands as well as residents along the transportation routes for the duration of the project. One of the most worrisome "temporary" direct impacts*

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		to Coal Creek Canyon residents, many of whose homes lie within Boulder County, is the enormous increase in construction truck traffic contemplated if the Preferred Alternative is approved as proposed. The proposed increase in truck traffic poses a serious threat to the safety of travelers in Coal Creek Canyon (vehicular, bicycle, and pedestrian), road maintenance costs, and access for emergency vehicles – particularly in case of wildfire. The Draft documents do not adequately describe and address the nature of these impacts on local and regional residents during the construction period. **Response #779-69:** DEIS Chapter 4 does not describe the "construction impact area." The Project area evaluated in the EIS includes Gross Reservoir in Boulder County, the Leyden Gulch Reservoir site in Jefferson County, gravel pits along the South Platte River in Adams County, and deep aquifer storage in Denver County (see DEIS Figure 2-1). The Project would comply with all applicable State and Federal air quality rules, and would cooperate with the CDPHE APCD in ensuring compliance. CDPHE is the State agency responsible for ensuring that Colorado attains, maintains, and enforces the NAAQS. Through the APCD construction permit process and the conformity determination process, the State regulates pollutant emissions that have the potential to endanger public health and welfare. For purposes of EIS analysis, the Corps assumes construction equipment used by the contractors would function as designed and conform to applicable noise emission standards. Denver Water would comply with all applicable noise ordinances and work with Boulder County to identify reasonable and feasible noise abatement measures for the Project construction period.

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		In general, construction activities would occur during the day and night lighting would not be required other than for safety and security purposes. However, there may be infrequent periods during the construction phase of the Project when double or even triple work shifts would be required. Increased night lighting would be required during these infrequent periods and it would be visible from surrounding nearby residences and wildlife during this construction activity. Work hours for all construction would be limited in conformance with applicable local ordinances. Following completion of construction, lighting on the raised dam would be the same as currently exists. Therefore, no long term impacts from lighting are expected. Emergency vehicles would have access to the same response routes during construction that currently exist. If an emergency vehicle needed access to closed road, access would be granted. Additionally, construction contractors would pull over to allow emergency response vehicles to pass as needed. The Corps assumes that construction contractors would comply with health and safety plans and codes instituted by their respective companies and Denver Water. A contractor hired by Denver Water would be in charge of construction activity, including safety compliance. Denver Water also plans to have staff on-site during construction. ***Comment #779-51*** *(ID 5051)**:*** *The noise, air quality, and fiscal impacts of roadway maintenance and repair caused by thousands of truck trips from the construction material source near Longmont along state highways and local roads of Boulder County will be significant, yet the Draft documents do not adequately describe these impacts, much less how Denver Water proposes to mitigate them.*

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		Response #779-51: DEIS Section 4.12.1 describes off-site construction-related noise resulting from increased traffic using site access roads, including the haul route to Longmont. The noise impacts from construction traffic would contribute to the overall background noise levels in the Gross Reservoir study area and are anticipated to be temporary and minor. The degree that background noise levels may increase would be consistent with variation in the construction schedule. Construction traffic noise is predicted to comply with county ordinance requirements. Greenhouse gas (GHG) emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in FEIS Section 5.13. The calculations include on-road exhaust emissions from worker commuter vehicles, delivery trucks, and all other Project-related construction equipment. Detailed emission calculation spreadsheets and references are presented in FEIS Appendix I. Boulder County maintains Gross Dam Road (County Road [CR] 77S) from State Highway (SH) 73 to the railroad tracks. Denver Water currently maintains Gross Dam Road from the railroad track crossing to Flagstaff Road. During construction, Denver Water or its contractor would be responsible for maintaining all of Gross Dam Road. Denver Water would work with Jefferson and Boulder counties to address local traffic concerns. ***Comment #779-68*** *(ID 5050)**:*** *Denver Water has dismissed any use of a railroad transportation option, in whole or in part, from the preferred alternative for reasons of costs and due to "little interest" in this option being expressed by the Union Pacific Railroad.[24] While it is clear that the UPRR is the sole decision maker in this regard,*

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		Denver Water did not provide a comparable cost analysis for the truck haul alternative selected, as previously requested in Boulder County's Pre-application Document letter to Denver Water dated September 25, 2008. The Draft documents fail to adequately address why much of this impact can't be avoided or significantly minimized by use of the existing rail system to haul aggregate and other construction materials to the site. FOOTNOTE: [24] Draft FERC Hydropower License Amendment Application, Atch. E-4: Borrow Haul Study at 7. **Response #779-68:** Please see the response to Comment ID 5029. ***Comment #779-67*** *(ID 5049)**:*** *While trucking-only appears to be less costly than rail and truck, it appears unreasonably high rail and trucking costs inflated the cost estimates. A combined rail/truck haul method was costed by HDR at 24.4 cents per ton-mile for the rail component and 119 cents/ton-mile for the six miles of trucking, resulting in a total cost of $16.1 million. Boulder County's research indicates a truck-only method would cost approximately 17.7 cents per ton-mile, or about $9.3 million or 42% less than rail and truck. However, when compared to a national trucking cost average of just 26.6 cents per ton-mile, the HDR trucking cost component at 119 cents per ton-mile seems unreasonably high. This national average is based on three separate sources, including the U.S. Bureau of Transportation Statistics and the American Association of Railroads. In addition, the unit costs of a combined rail/truck haul operation as provided in the Borrow Haul Study are approximately 25 cents per ton-mile for rail and 120 cents per ton-mile for trucking materials up the remaining three miles to the dam site. Yet, national averages for railroad transport are about 3 cents per ton-mile per the Bureau of Transportation Statistics*

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		and the American Association of Railroads. Further, national trucking costs are 30 cents per ton-mile or less. Even allowing for some steep grades and 24 hour/day operations, the truck/rail costs in the Borrow Haul Study seem excessively high. **Response #779-67:** The costs for hauling aggregates by truck and rail for the Moffat Project are not accurately represented by national trucking and railroad transportation statistics (very long hauls). The actual Project field conditions are significantly different. Some of the variables included for hauling costs are traffic, speed limits, elevation, grade, load size (14 or 25 cubic yard [cy] trucks), dead haul, load time and truck cycle haul time. Three local suppliers and aggregate haulers from the Brighton, Colorado area were contacted by HDR Engineering, Inc. (HDR) for its study to refine its conceptual analysis. The total average cost for all types of hauling with the combined roadway sections is $0.35 per ton mile ($0.46 yard per mile). Total cost for hauling the fine aggregate from an assumed Brighton location to Gross Dam is 300,000 cy X 1.3 = 390,000 tons X 48.4 miles X $0.35 ton mile = $6.6 million, using tandem 14 cy trucks. The 25 cy trucks were not considered as they would have difficulty maneuvering the steep, winding terrain. In addition to the estimated cost to construct additional pullouts along SH 72 between SH 93 and Gross Dam, the total truck only haul cost is $7.1 million. HDR obtained a quote from Union Pacific Railroad (UPRR) for fine aggregate rail haul from an assumed Brighton location to Pinecliffe (the closest area to the potential new siding). The quoted rate is $4,030 per car. The original estimate of $2,000/car/day was originally obtained from the UPRR website for a conceptual estimate when fine aggregate sources

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		were undetermined. Given this haul cost and the cost to design a railroad siding, obtain railroad approval, construct and maintain the rail siding with the railroad car unloading and truck re-loading facility, the total rail/truck combined haul cost is $23.9 million for the use of an existing siding or $30.9 million for the construction of a new siding. A copy of the Final Borrow Haul Study Alternative Analysis (HDR 2012) can be found as Attachment E-4 of the Moffat FERC Hydropower License Amendment Application. ***Comment #779-50*** *(ID 5048)**:*** *The current cost comparison does not adequately show costs for the pullouts or for road improvements from the rail siding to the dam.* **Response #779-50:** In 2012, in response to comments received from the public and Boulder County, Denver Water retained an independent consultant to update the 2009 Borrow Haul Study to provide a direct comparison of truck hauling versus rail hauling of both construction materials and tree removal products, including cost, noise, air quality and carbon footprints. Boulder County staff helped develop the scope of work for this study. The Final Borrow Haul Study Alternatives Analysis (HDR 2012) report concluded the following: • The consultant developed a conceptual alternative to evaluate a possible rail operations plan that would allow acceptable train movements and unloading operations. The use of trucks would not be eliminated by this alternative. In general, for purposes of this study, it was assumed that construction materials (fine aggregate, cement, and fly-ash) from various source locations would be delivered to the 88th Avenue rail siding near Thornton, transported by rail car to the Crescent siding, be off-loaded by

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		conveyor to a new staging area located near the siding, then trucked to the Gross Dam staging areas. Trucks would need to be on site to deliver materials from the staging areas to Gross Dam. Likewise, the timber materials would be truck hauled from around Gross Reservoir to the Crescent rail siding, loaded onto rail cars, and rail hauled to various sites. • The consultant determined that significant land disturbance and infrastructure would have to be constructed at the Crescent rail siding to accommodate the loading and off-loading. The following construction activities would require the use of trucks along SH 72 to deliver materials for the facilities associated with the rail alternative: - Construction of an additional siding parallel to the Crescent siding. - Addition of track-switching equipment allowing the new siding to be connected to the mainline track. - Construction of a storage area near the Crescent siding in Eldorado State Canyon Park and in Crescent Meadows open space to allow the unloading of rail cars. This siding would have two types of storage areas: (1) aggregate (sand and gravel) would be stockpiled on the ground, and (2) cement and fly-ash would be stored in two silos. The conveyor system and storage area would require at least 3 acres of land in Eldorado Canyon State Park and Crescent Meadows open space. • A new siding, switching equipment and storage area would increase the cost of the Moffat Project by at least $17 million. • Under either alternative, truck hauling only or truck/rail hauling, the same number of trucks

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		would use Gross Dam Road (CR 77S) between the rail siding and the dam staging areas. • From an air quality perspective, there would not be a significant difference in emissions between the rail/truck hauling alternative and truck hauling only alternative. Both options would have emissions below *de minimis* thresholds and General Conformity requirements established under the Clean Air Act (CAA) would not apply. • From a noise perspective, although noise levels would increase under both alternatives, the addition of Project-related noise sources from either the rail/truck alternative or truck only alternative would have a negligible effect on the existing noise levels. Nonetheless, Denver Water is discussing with Boulder County specific measures to address residents' concerns with noise such as restricting hours of truck hauling. • From a carbon footprint perspective, the difference between the two hauling alternatives would not be significant. A carbon footprint is calculated by performing a GHG inventory, which is a comprehensive accounting of GHG emissions attributed to a project's activities. A GHG inventory was conducted for both the rail/truck alternative and the truck only alternative. The results indicated that GHG emissions would decrease approximately 50% from rail/truck hauling compared to truck only hauling. However, the GHG emissions resulting from either alternative would not be significant and would be below any threshold guidelines for reducing emissions. Denver Water met again with Colorado Department of Transportation (CDOT) officials in 2012 to review Project-related transportation issues. CDOT reaffirmed that SH 72 is designed to handle the proposed increase in construction traffic, and that no

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		significant negative impact is expected on SH 72 pavement conditions due to the planned work. A copy of the Final Borrow Haul Study Alternative Analysis (HDR 2012) can be found as Attachment E-4 of the Moffat FERC Hydropower License Amendment Application. ***Comment #779-7*** *(ID 5047)**:*** *There is no cost breakdown or itemization for the number of trucks to be rented/purchased/leased for the project, drive times between sites, fuel consumption, equipment maintenance, driver pay, liability insurance, maintenance on the county and state road systems along the haul routes, or construction and schedule delays due to inclement weather/accidents.* **Response #779-7:** In the Borrow Haul Study performed by HDR for Denver Water, the specific truck information was not analyzed because it is contractor-driven and varies considerably by each contract's approach, equipment and operation. HDR received itemized costs from individual contractors' quoted prices for its analysis, which amounted to an average cost of $0.35 per ton mile. A copy of the Final Borrow Haul Study Alternative Analysis (HDR 2012) can be found as Attachment E-4 of the Moffat FERC Hydropower License Amendment Application. ***Comment #779-66*** *(ID 5046)**:*** *Clearing of vegetative biomass and its removal from the project site (either in the form of ash or as cubic yards/tons of trees) warrants a similar cost analysis and would add to the overall figures.* **Response #779-66:** Total construction costs evaluated as part of total economic output for the Proposed Action included direct construction costs as well as engineering and

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		environmental costs. Direct construction costs included all expenditures related to site preparation, including the cost of tree removal. Please refer to DEIS Section 4.17.1.1. ***Comment #779-65*** *(ID 5045)**:*** *It is not evident from the documents provided that Denver Water looked at or inquired about occasional rail use, and has relied heavily on the cost of constructing new sidings as a reason for dismissing the rail option without providing any equivalent analysis of truck costs.* **Response #779-65:** Please see the response to Comment ID 5043. ***Comment #779-64*** *(ID 5044)**:*** *The revised analysis should also comply with the recently issued guidance for incorporating climate change impact analysis into NEPA processes.[25] How does the trucking-only option compare to rail and truck from a carbon emissions standpoint? There is also no air quality analysis comparing the types, quantities, and timeframes for emissions differentials between truck trips vs. rail vs. rail as an occasional option for hauling. FOOTNOTE: [25] Memorandum for Heads of Fed. Dep'ts and Agencies from Council on Envtl. Quality on Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (Feb. 18, 2010), available at http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf* **Response #779-64:** GHG emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in Section 5.13. The calculations include on-road exhaust emissions

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		from worker commuter vehicles, delivery trucks, and all other Project construction equipment. Detailed emission calculation spreadsheets and references are presented in Appendix I. ***Comment #779-63*** *(ID 5043)**:*** *In sum, the Corps and FERC should require Denver Water reanalyze all the costs, impacts, and benefits of truck versus rail transportation, this time using the same methodology for comparing the two options, using at least the above-mentioned types of costs, and based on accepted industry standards for trucking and rail cost.* **Response #779-63:** In 2012, in response to comments received from the public and Boulder County, Denver Water retained an independent consultant to update the 2009 Borrow Haul Study to provide a direct comparison of truck hauling versus rail hauling of both construction materials and tree removal products, including cost, noise, air quality and carbon footprints. Boulder County staff helped develop the scope of work for this study. The Final Borrow Haul Study Alternatives Analysis (HDR 2012) report concluded the following: • The consultant developed a conceptual alternative to evaluate a possible rail operations plan that would allow acceptable train movements and unloading operations. The use of trucks would not be eliminated by this alternative. In general, for purposes of this study, it was assumed that construction materials (fine aggregate, cement and fly-ash) from various source locations would be delivered to the 88th Avenue rail siding near Thornton, transported by rail car to the Crescent siding, be off-loaded by conveyor to a new staging area located near the siding, then trucked to the Gross Dam staging

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		areas. Trucks would need to be on site to deliver materials from the staging areas to Gross Dam. Likewise, the timber materials would be truck hauled from around Gross Reservoir to the Crescent rail siding, loaded onto rail cars, and rail hauled to various sites. • The consultant determined that significant land disturbance and infrastructure would have to be constructed at the Crescent rail siding to accommodate the loading and off-loading. The following construction activities would require the use of trucks along SH 72 to deliver materials for the facilities associated with the rail alternative: - Construction of an additional siding parallel to the Crescent siding. - Addition of track-switching equipment allowing the new siding to be connected to the mainline track. - Construction of a storage area near the Crescent siding in Eldorado State Canyon Park and in Crescent Meadows open space to allow the unloading of rail cars. This siding would have two types of storage areas: (1) aggregate (sand and gravel) would be stockpiled on the ground, and (2) cement and fly-ash would be stored in two silos. The conveyor system and storage area would require at least 3 acres of land in Eldorado Canyon State Park and Crescent Meadows open space. • A new siding, switching equipment and storage area would increase the cost of the Moffat Project by at least $17 million. • Under either alternative, truck hauling only or truck/rail hauling, the same number of trucks would use Gross Dam Road (CR 77S) between

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		the rail siding and the dam staging areas. • From an air quality perspective, there would not be a significant difference in emissions between the rail/truck hauling alternative and truck hauling only alternative. Both options would have emissions below *de minimis* thresholds and General Conformity requirements established under the CAA would not apply. • From a noise perspective, although noise levels would increase under both alternatives, the addition of Project-related noise sources from either the rail/truck alternative or truck only alternative would have a negligible effect on the existing noise levels. Nonetheless, Denver Water is discussing with Boulder County specific measures to address residents' concerns with noise such as restricting hours of truck hauling. • From a carbon footprint perspective, the difference between the two hauling alternatives would not be significant. A carbon footprint is calculated by performing a GHG inventory, which is a comprehensive accounting of GHG emissions attributed to a project's activities. A GHG inventory was conducted for both the rail/truck alternative and the truck only alternative. The results indicated that GHG emissions would decrease approximately 50% from rail/truck hauling compared to truck only hauling. However, the GHG emissions resulting from either alternative would not be significant and would be below any threshold guidelines for reducing emissions. Denver Water met with CDOT officials again in 2012 to review the Project-related transportation issues. CDOT reaffirmed that SH 72 is designed to handle the proposed increase in construction traffic, and that no significant negative impact is expected on SH 72 pavement conditions due to the planned

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		work. A copy of the Final Borrow Haul Study Alternative Analysis (HDR 2012) can be found as Attachment E-4 of the Moffat FERC Hydropower License Amendment Application. ***Comment #779-62*** *(ID 5042)**:*** *Stream flow impacts. The Draft documents state that there are "moderate" stream flow impacts to upper tributaries of Fraser and Williams Fork rivers during average to wet years. But those impacts are up to 30% of total stream flow, which is a major impact.* **Response #779-62:** The discussion of surface water effects on upper tributaries of the Fraser River and Williams Fork River in average and wet years was revised in the FEIS. ***Comment #779-61*** *(ID 5041)**:*** *In general, Boulder County is supportive of anything that benefits South Boulder Creek water flow. Thus, the County supports the concept of "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette as necessary but not in and of itself sufficient mitigation for aquatic impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam. With this in mind, effects on the South Boulder Creek catchment area downstream of the reservoir, both positive and negative, need further elaboration and clarification in the Draft documents, particularly the likely effects above versus below the South Boulder Canal Diversion. Also, the Draft documents' discussion of the Environmental Pool does not include a sufficiently detailed analysis of the associated hydrologic impacts. The maximum 75 cubic foot/second decrease in flows is not adequately analyzed. And statements that reducing peak flows is beneficial to aquatic habitats and species, that increasing winter flows is good for aquatic habitat, and that a larger pool size is good for aquatic habitat all*

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		may be false, depending on site-specific conditions, channel conditions and species requirements. **Response #779-61:** Gross Reservoir outflow and flow at the South Boulder Creek at Eldorado Springs gage were relied on to analyze hydrologic effects above and below the South Boulder Diversion Canal. Hydrologic effects above and below the South Boulder Canal that are related to Environmental Pool operations are presented in Table 1a and Figure 2a of Attachment A of FEIS Appendix M. Table 1a, and Figures 1a and 2a were inadvertently not included in Attachment A of DEIS Appendix M and have been added to the FEIS. More information was provided in Attachment A of Appendix M on the frequency and timing of the maximum 75 cfs decrease in flows at the Eldorado Springs gage. Physical Habitat Simulation (PHABSIM) model information for rainbow trout presented in the DEIS and in FEIS Section 3.11 takes into account site-specific conditions, channel conditions, and species requirements. The habitat relationships indicate that the changes in flow with the Project, mainly higher winter flows and lower spring flows, would benefit rainbow trout, as discussed in FEIS Sections 4.11 and 5.11. The conclusion that benthic invertebrates in this section of the stream would also benefit from the flow changes is based on professional judgment. In Gross Reservoir, a larger pool size would result in a larger surface area and volume which generally supports more fish than a smaller pool size. Also, a larger reservoir would provide more littoral zone area, the productive shallow area around the reservoir, which generally benefits a fishery. There does not appear to be any supporting information that would indicate that these statements concerning the stream and reservoir in the DEIS and FEIS are false.

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		Comment #779-29 *(ID 5040)**:*** *Riparian and wetland area impacts. i. The Draft documents conclude that there are "moderate to major" cumulative impacts to riparian and wetlands areas on the Front Range area from agricultural water rights transfers. It does not make sense that these impacts will be greater than impacts on western slope streams, as reflected by statements like "cumulative impacts to aquatic resources in North Fork Ranch Creek (tributary to Fraser River) would be minor adverse."* **Response #779-29:** Please see the response to Comment ID 5038. The North Fork of Ranch Creek study site has a limited amount of riparian vegetation because of its topographic setting. As described on page 3-42 of the DEIS, the North Fork of Ranch Creek is a Rosgen Type A stream with steep to vertical cutbanks and riparian vegetation that is narrowly confined to the margins of the stream. The reduction in inundated area would be less than 0.01 acre within the study area, or 0.09 acre when extrapolated over a one-mile distance. ***Comment #779-60*** *(ID 5039)**:*** *The Draft documents underestimate the total acreage of impacts to riparian habitat in the South Boulder Creek drainage.[26] The analysis of impacts to riparian habitat should include more than just direct impacts. Further, analysis of impacts in terms of "acres" does not provide an adequate assessment of a linear habitat. Rather, the analysis should be quantified in terms of "stream miles" (with an identified buffer). In addition, because of the unique values certain riparian areas may possess – all acres are not created equal – the analysis of impacts to this resource should include more detailed descriptions of impacts to unique riparian*

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		areas. These habitats are especially valuable to many riparian-centric species, such as bats, neotropical migratory birds, and their predators. FOOTNOTE: [26] Draft EIS, Exec. Summary at 28. **Response #779-60:** The analysis of impacts to riparian habitat included both direct losses of habitat from construction and inundation at Gross Reservoir (DEIS Section 4.6.1.1), and discussion of indirect impacts due to stream flow changes at study sites along South Boulder Creek both above and below the reservoir (DEIS Section 4.6.1.2). The miles of affected stream reaches, along with acres of riparian vegetation along them, are provided in DEIS Table 3.6-7. Impacts from lower flow levels cannot be measured in the same way as the direct impacts shown in Tables 4.6-1 and 4.6-3 of the DEIS and in most cases would involve a shift in vegetation type rather than loss or full conversion to upland. An accurate quantitative summary of acres of indirect impacts in a format like Table 4.6-3 is not possible and would be misleading if it were presented. Regarding “unique riparian areas,” DEIS Section 4.5.1.1 presented detailed information on impacts to riparian habitats in Colorado Natural Heritage Program (CNHP) Potential Conservation Areas (PCAs) along Winiger Gulch and South Boulder Creek. Other unique riparian areas have not been identified in the study area. ***Comment #779-28*** *(ID 5038)**:*** *Wildlife impacts. i. The Draft documents conclude that there are “moderate” cumulative effects to wildlife on the Front Range from loss of aquatic habitat from transfer of agricultural water rights. As with riparian and wetland areas, it does not make sense that these impacts will be higher than those on the western slope.*

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		Response #779-28: There would be no direct impacts (i.e., impacts resulting from construction or inundation) to wetlands on the West Slope. All of the impacts on the West Slope would be indirect, resulting from changes in stream flows associated with operational changes in the Moffat Collection System. Impacts from lower flow levels cannot be measured in the same way as the direct impacts shown in DEIS Tables 4.6-1 and 4.6-3, and in most cases would involve a shift in vegetation type rather than loss or full conversion to upland. Due to the relatively little changes to wetlands from flow changes, a precise quantitative summary of acres of indirect impacts in a format like Table 4.6-3 is virtually impossible and would be misleading if it were presented. ***Comment #779-27*** *(ID 5037)**:*** *Elsewhere, the Draft documents conclude there would only be minor cumulative impacts to wildlife (Summary, page 45). This analysis is flawed and should be redone to consider the negative effects to wildlife including habitat from the additional development induced by the construction of the Preferred Alternative.* **Response #779-27:** The Corps analyzed demand in the Project area based on demographic projections from various Federal and local sources. The Corps also independently evaluated the demand projections stated in Denver Water's Integrated Resource Plan, which that would help guide water management over the next 40 years. As stated in DEIS Section 4.14 and FEIS Section 5.16: "Several recent studies have suggested that there is no substantive causal relationship between population growth and the development of water, or vice versa. One such study is summarized as follows:

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		The relationship between water and growth in the modern West is often misunderstood. Historically, it has been assumed that water development was a necessary precursor to growth and, similarly, that a lack of water development could act as a deterrent to growth. While these premises may have been true at one time, recent experience in Colorado and other western states shows both ideas are now unsupportable. To the contrary, many of the regions showing the highest rates of growth in the West – from Douglas County, Colorado to Las Vegas, Nevada – show the opposite trend; growth is actually highest in some of the driest regions. Similarly the veto of the proposed Two Forks Dam on the Front Range by the EPA in 1990 certainly did not deter growth in the Denver Metropolitan area. Examples also suggest that an abundance of water is often insufficient to stimulate growth. The experience of Pueblo is illustrative. (Nichols et al. 2001). Numerous other studies analyzing the relationship between growth and water reach similar conclusions, such as Western Land Use Trends and Policy: Implications for Water Resources (Riebsame 1997); Atlas of the New West (Center of the American West 1997); and Water in the West: The Challenge for the Next Century (Western Water Policy Review Advisory Commission 1998). This growth issue was evaluated and dismissed by the Corps during the NEPA analysis of the Two Forks Dam and Reservoir Project in 1988 – “As a result of including the No Federal Action scenario, the Corps was able to answer a major question then being asked – would growth continue in the Denver Metropolitan area without Federal approval of a major water supply project. The evaluation of the No Federal Action scenario determined that growth would occur regardless of Federal action.” (Corps 1998, page 3-3 of the Final EIS Metropolitan Denver

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		Water Supply EIS, Volume 1)." Therefore, a cumulative effects analysis is not warranted because there is little evidence that the Project would induce additional development. ***Comment #779-6*** *(ID 5036)**:*** *The analysis of impacts to bald eagles in the Draft EIS inaccurately concludes that there will be beneficial impacts to this species.[27] However, claiming beneficial impacts to bald eagles can only occur if there are no overall negative impacts to the species. The construction period (four years or more) under the Proposed Action will likely preclude bald eagle nesting and reduce foraging – a negative impact. FOOTNOTE: [27] Id. at 31.* **Response #779-6:** There are no known bald eagle nests or roosts at or near Gross Reservoir. Bald eagles do not regularly use the area and displacement during the construction period would have temporary negligible effects. ***Comment #779-21*** *(ID 5035)**:*** *The Draft EIS analysis of potential impacts to Prebles Meadow Jumping Mouse should be revised to consider new information concerning potential Prebles existence at higher elevations, including those drainages feeding Gross Reservoir from the west. A new Determination of Effect should be undertaken that considers this new information.[28] FOOTNOTE: [28] See id. at Chap. 3, pages 171 - 196; Chap. 4, page 290.* **Response #779-21:** We are not aware of any "new information" that would change the conclusion that Preble's meadow jumping mouse is unlikely to occur at Gross Reservoir. A copy of the letter from USFWS accepting the habitat evaluation for the Gross

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		Reservoir area was provided in Appendix G of the DEIS. ***Comment #779-20*** *(ID 5034)**:*** *The analysis of impacts to elk habitat in the Draft EIS from expanding Gross Reservoir states that there would be "no long-term impacts but impacts are considered moderate."[29] Any loss of elk winter concentration areas and severe winter range would be adverse and long term – that habitat will be gone forever. The Draft EIS does acknowledge the loss of some elk range; however, it does not acknowledge the loss of quality riparian habitats which, in some instances, is viable for elk calving. FOOTNOTE: [29] Id. at Chap. 4, page 273.* **Response #779-20:** The quoted phrase does not match the text on DEIS page 4-273. The DEIS did identify permanent losses of habitat from the Project (DEIS Table 4.7-2), but said that the losses represented a relatively small portion of the amount available and impacts to the elk herd were identified as moderate. The Colorado Natural Diversity Information Source does not indicate that elk calving occurs in the vicinity of Gross Reservoir. Losses of riparian habitat were addressed in DEIS Sections 4.6 and Denver Water has proposed mitigation to replace riparian habitat (see FEIS Appendix M). ***Comment #779-19*** *(ID 5033)**:*** *The conclusions on impacts to fish habitat in the Draft EIS is inaccurate (Chapter 4, pages 313 and 335). Lacustrine species in South Boulder Creek will benefit; however, 1.25 miles of lotic habitat will be lost, including potential spawning habitat.* **Response #779-19:** FEIS Section 3.11 has been revised to include a description of the affected environment in the Gross

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		Reservoir tributaries. FEIS Sections 4.6.11 and 5.11 have been revised to include the impacts of the expanded Gross Reservoir on aquatic resources in the tributaries and South Boulder Creek. The proposed mitigation, a 5,000 AF environmental pool, would establish a supply of water on a year-round basis in a section of South Boulder Creek that typically goes dry for a portion of the year. ***Comment #779-59*** *(ID 5032)**:*** *Impacts on vegetation, including massive tree removal. The Preferred Alternative will directly and permanently impact several rare plant communities – including flooding out two "globally rare" plant communities identified by the Colorado Natural Heritage Program ("CNHP"), water birch/mesic forb foothills riparian shrub along South Boulder Creek and thinleaf alder/mesic forb riparian shrubland in Winiger Gulch. These communities are mapped by CNHP as Potential Conservation Areas ("PCA"). PCAs are generalized areas surrounding a specific plant community that are large enough to provide protection to the specific habitat occurrence. The plant community occurrence in Winiger Gulch PCA is rated by CNHP as an area of "moderate significance" and the community in South Boulder Creek PCA as "high significance." (About 1,835 feet of the length of Winiger Gulch within the PCA would be within the expanded reservoir area, about 43%of total length in PCA, and 2,575 feet of South Boulder Creek within the PCA, about 30% of total length in PCA.) The Draft EIS concludes that inundation of the central portions of these PCAs would have a moderate to major adverse impact, which is of concern to Boulder County. The Corps and FERC must ensure that the impacts are avoided, minimized, and mitigated to the maximum extent possible.*

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		Response #779-59: Information on CNHP PCAs has been updated in the FEIS (Sections 3.7 and 5.7), to reflect changes made by CNHP in PCA boundaries, designation and descriptions. ***Comment #779-58*** *(ID 5031)**:*** *All of the direct impacts to vegetation from the Proposed Action would occur at Gross Reservoir in Boulder County, totaling approximately 508 acres of vegetation communities. These 508 acres are split between approximately 456 acres of permanent vegetation loss and about 52 acres of temporary impact. Most of the impacts would be permanent due to inundation from expanding Gross Reservoir and construction of the enlarged Gross Reservoir Dam. And most would occur in the ponderosa and ponderosa pine/Douglas fir communities. The phrase "small areas of wetland and riparian vegetation would also be affected" in the Draft EIS is inaccurate (Summary, page 29). The correct terminology is "small areas of wetland and riparian vegetation would be lost." The creation of "new" riparian areas, as described in Appendix M (Proposed Mitigation Plan) along the elevated pool level is either assured or a sufficient offset. The Draft EIS should require that the proposed replacement of riparian areas occur in areas that will be successful and provide the same habitat benefits as those areas being inundated. The Draft EIS should be revised to specifically describe the proposed revegetation/restoration plans, including the specific location for riparian restoration activities and the ratio of area of riparian vegetation restored to area lost.* **Response #779-58:** Revegetation of the cleared area above the inundation line would be done in the first appropriate season following timber removal, and there would

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		not be a gap of several years between clearing and revegetation. Within the expanded inundation area, there could be a gap of several years between timber removal and inundation, and no revegetation would be conducted below the new high water line. Denver Water would work with the USFS to ensure that forest clearing and revegetation would be consistent with National Forest standards. Removal of trees in the new inundation area would create a temporary major visual impact until the reservoir fills, which was described in DEIS Section 4.15. The revegetation plan for Gross Reservoir would be prepared after completion of the FEIS and prior to construction for those areas above the new high water line. The Corps would likely require performance standards, should a Section 404 Permit be issued. ***Comment #779-18*** *(ID 5030)**:*** *The Draft EIS analysis does not include the loss of 1.25 miles of stream/riparian/fish habitat under the Proposed Action due to inundation.[30] This should be included as part of the impact analysis. FOOTNOTE: [30] Id. at Chap. 4, page 5.* **Response #779-18:** The DEIS discussed these impacts in Section 4.6.1.1, including impacts to riparian and wetland habitats and to streams (as other waters of the United States [U.S.]). ***Comment #779-5*** *(ID 5029)**:*** *As with the question of truck versus rail transportation of construction materials to the site, on the subject of removing thousands of trees to expand the reservoir the Draft documents should be revised in light of recent CEQ guidance on incorporating climate change impacts in NEPA documents.[31] FOOTNOTE: [31] Draft NEPA Guidance on Consideration of the Effects of Climate*

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		Change and Greenhouse Gas Emissions, supra note 25. **Response #779-5:** Denver Water hired an independent consultant to evaluate using the railroad to transport material to the site. The consultant found that using the railroad would not be feasible for the Project because of the technical, logistical, topographical and cost problems associated with unloading material at the existing railroad siding. Based on discussions with UPRR, the consultant determined that new infrastructure would need to be constructed to accommodate the rail cars and avoid conflicts with the coal train traffic on the mainline; handle unloading of the various materials into trucks, which would be needed to transport the material to the dam site; and avoid conflicts with traffic on Gross Dam Road. A new siding would be very difficult and expensive (approximately $20 million) to construct due to the constraints of the existing topography and would require a significant amount of material to be hauled to the siding by truck on SH 72. ***Comment #779-40*** *(ID 5028)**:*** *Socioeconomic impacts. i. The analysis and discussion of the socioeconomic impacts caused by the Preferred Alternative is insufficient, especially the permanent direct and indirect impacts to Grand County residents and Coal Creek Canyon residents. For example, the Draft documents state that there are moderate negative socioeconomic impacts to Front Range/Weld County communities from water rights transfers, but the associated discussion of cumulative or indirect impacts to the western slope is inadequate.*

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		Response #779-40: FEIS Section 5.19 provided additional analysis and discussion as appropriate regarding socioeconomic impacts to communities surrounding Gross Reservoir. FEIS Section 4.6.19 expand on the discussion of impacts to Grand County residents, a discussion of total environmental effects from all past, present and RFFAs, and in Section 5.19, the effects solely from Moffat Project alternatives. ***Comment #779-57*** *(ID 5027)**:*** *Impacts due to growth induced by an expanded Gross Reservoir. NEPA allows for consideration of indirect effects "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[32] "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."[33] Under the terms of an existing contract between Arvada and Denver Water, if Gross is expanded, Arvada gets up to 3,000 acre-feet/year. According to recent research by the City of Golden, the Candelas proposal for developing the area of the Highway 72/93 intersection is short some 2,900 acre-feet of water, assuming full build-out. Arvada staff views the Moffat Project as its "single biggest infrastructure need."[34] Denver Water recently estimated Arvada's share of the cost of the Moffat Project at $90 million. Naturally, the Candelas owners and developers "strongly support" the expansion of Gross, as reflected in their one-paragraph comments on the Draft documents. In sum, it's no secret that additional water stored in Gross will go to serve additional development, most likely in areas along the mountain backdrop corridor between Boulder*

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		and Golden that deserve especially careful planning and protection. Consequently, the Draft documents must be revised to better elucidate the connections between permitting expansion of Gross and the development of Arvada and other Denver metro area communities. These revisions should spell out the likely increase in population, the impacts of this induced growth on local communities to include an estimate of the number of affected residents who live in Boulder County, Coal Creek Canyon, and Golden at a minimum. FOOTNOTES: [32] 40 C.F.R. § 1508.8(b). [33] Id. [34] See, e.g., Letter to Corps, FERC, and Denver Water from Jefferson Center Metro. Dist. No. 2 (Mar. 5, 2010). **Response #779-57:** Please see the response to Comment ID 5026. If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, the Corps believes it is a reasonable and conservative approach to include the 3,000 AF/yr in the predicted 2032 demand in the analysis. The relationship between water and growth in the modern West is often misunderstood. Historically, it has been assumed that water development was a necessary precursor to growth and, similarly, that a lack of water development could act as a deterrent to growth. While these premises may have been true at one time, recent experience in Colorado and other western states shows both ideas are now unsupportable. To the contrary, many of the regions showing the highest rates of growth in the West – from Douglas County, Colorado to Las Vegas, Nevada – show the opposite trend; growth is actually highest in some of the driest regions.

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		Similarly the veto of the proposed Two Forks Dam on the Front Range by the EPA in 1990 certainly did not deter growth in the Denver Metropolitan area. Examples also suggest that an abundance of water is often insufficient to stimulate growth. The experience of Pueblo is illustrative. (Nichols et al. 2001). Numerous other studies analyzing the relationship between growth and water reach similar conclusions, such as Western Land Use Trends and Policy: Implications for Water Resources (Riebsame 1997); Atlas of the New West (Center of the American West 1997); and Water in the West: The Challenge for the Next Century (Western Water Policy Review Advisory Commission 1998). This growth issue was evaluated and dismissed by the Corps during the NEPA analysis of the Two Forks Dam and Reservoir Project in 1988 – "As a result of including the No Federal Action scenario, the Corps was able to answer a major question then being asked – would growth continue in the Denver Metropolitan area without Federal approval of a major water supply project. The evaluation of the No Federal Action scenario determined that growth would occur regardless of Federal action." (Corps 1998, page 3-3 of the Final EIS Metropolitan Denver Water Supply EIS, Volume 1.)" Independent studies, such as the State-wide Water Supply Initiative, commissioned by the State of Colorado anticipate high growth rates for Colorado, including the Front Range. These high growth rates are likely to occur regardless of what water projects are constructed. ***Comment #779-39*** *(ID 5026)**:*** *The Draft documents should be revised to reflect the effects on climate change of additional induced growth along the Highway 93 corridor, due to the*

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		increase in emissions associated with increased population and jobs. **Response #779-39:** GHG emissions from the Project have been estimated and incorporated in the summary tables of construction emissions presented in Section 5.13. The calculations include on-road exhaust emissions from worker commuter vehicles, delivery trucks, and all other Project construction equipment. Detailed emission calculation spreadsheets and references are presented in Appendix I. The Corps analyzed demand in the Project area based on demographic projections from various Federal and local sources. The Corps also independently evaluated the demand projections stated in Denver Water's Integrated Resource Plan, which would help guide water management over the next 40 years. As stated in DEIS Section 4.14 and FEIS Section 5.16: "Several recent studies have suggested that there is no substantive causal relationship between population growth and the development of water, or vice versa. One such study is summarized as follows: The relationship between water and growth in the modern West is often misunderstood. Historically, it has been assumed that water development was a necessary precursor to growth and, similarly, that a lack of water development could act as a deterrent to growth. While these premises may have been true at one time, recent experience in Colorado and other western States shows both ideas are now unsupportable. To the contrary, many of the regions showing the highest rates of growth in the West – from Douglas County, Colorado to Las Vegas, Nevada – show the opposite trend; growth is actually highest in some of the driest regions. Similarly the veto of the proposed Two Forks Dam

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		on the Front Range by the EPA in 1990 certainly did not deter growth in the Denver Metropolitan area. Examples also suggest that an abundance of water is often insufficient to stimulate growth. The experience of Pueblo is illustrative. (Nichols et al. 2001). Numerous other studies analyzing the relationship between growth and water reach similar conclusions, such as Western Land Use Trends and Policy: Implications for Water Resources (Riebsame 1997); Atlas of the New West (Center of the American West 1997); and Water in the West: The Challenge for the Next Century (Western Water Policy Review Advisory Commission 1998). This growth issue was evaluated and dismissed by the Corps during the NEPA analysis of the Two Forks Dam and Reservoir Project in 1988 – "As a result of including the No Federal Action scenario, the Corps was able to answer a major question then being asked – would growth continue in the Denver Metropolitan area without Federal approval of a major water supply project. The evaluation of the No Federal Action scenario determined that growth would occur regardless of Federal action." (Corps 1998, page 3-3 of the Final EIS Metropolitan Denver Water Supply EIS, Volume 1.)" Independent studies, such as the State-wide Water Supply Initiative, commissioned by the State of Colorado anticipate high growth rates for Colorado, including the Front Range. These high growth rates are likely to occur regardless of what water projects are constructed. ***Comment #779-38*** *(ID 5025)**:*** *Recreational impacts i. The Draft EIS's analysis of impacts to recreation should include the loss of fishing, hunting, and kayaking from inundation of upstream water bodies.[35] Inundation of US Forest Service land will also eliminate some opportunities for hunting on these lands. FOOTNOTE: [35] See*

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		Draft EIS, Chap. 3, page 278. **Response #779-38:** Additional information on recreational topics was added to FEIS Section 5.15.1.1. ***Comment #779-54*** *(ID 5024)**:*** *The Draft EIS states that under the Proposed Action "additional" recreation opportunities will be created as a result of an enlarged reservoir due to increased use.[36] For example, the additional shoreline may provide additional dispersed shoreline recreation opportunities such as additional fishing access. But this is inconsistent with Appendix M, Proposed Mitigation Plan (page M-14), which provides that Denver Water does not intend to change the current recreational opportunities or management of Gross Reservoir under the Proposed Action. The federal permits should include a condition of approval that there will be no net increase in the number of recreational visitors at Gross Reservoir beyond that approved in the current recreation plan. This condition should also specify that any changes in recreational opportunities that may cause increases in visitors should be coordinated with and approved by Boulder County via an IGA amendment.* *FOOTNOTE: [36] Id. at Chap 4, page 370.* **Response #779-54:** While an expanded shoreline would provide a larger pool at high water, the overall attractiveness of the reservoir to recreational users is not expected to substantially change. Much of the reservoir shoreline would remain steep and seasonal fluctuations in water levels would continue. For these reasons, a major increase in visitation is not expected.

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		Comment #779-4 *(ID 5023)**:*** *The Draft EIS states that beyond the developed recreation areas defined in the Federal Energy Regulatory Commission (FERC) Gross Reservoir Management Plan, no additional developed recreation sites are planned. Because no additional infrastructure – e.g., parking areas, restrooms, etc. – would be constructed under the Proposed Action, the Draft EIS should disclose the potential adverse impact caused by overcrowding of visitor parking areas and facilities because of the improved shoreline opportunities attracting additional visitors to Gross Reservoir. Denver Water should include mitigation plans for potential overcrowding of developed recreation sites due to increased use from additional shoreline opportunities.* **Response #779-4:** FEIS Section 5.15.1.1 has been revised to reflect this. Although the size of the reservoir would increase, the amount of seasonal fluctuation and other operational conditions are not anticipated to make the reservoir more attractive for boating and other recreational uses. As a result, the Proposed Action is not anticipated to result in a large increase in use. ***Comment #779-53*** *(ID 5022)**:*** *The Draft EIS claims that there will be "no long-term conflicts with the recreational guidelines, goals, or objectives identified in…the Boulder County Comprehensive Plan…" (Section 4.13.1.1). However, the Draft EIS does not discuss the impact of the planned Gross Reservoir expansion on the "plains to mountains" trail alignment proposed on the "County Trails Map," adopted as part of the Boulder County Comprehensive Plan. The proposed expansion of Gross Reservoir is inconsistent with this Comprehensive Plan designation and would require substantial reassessment of this proposed*

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		corridor. The expansion would not only affect the alignment of this trail where it runs adjacent to the reservoir, but also the alignment of the trail north and west of the reservoir. **Response #779-53:** The Boulder County Comprehensive Plan was consulted and it was determined that the Project would not conflict with specific goals in relation to potential future trail corridors. The Boulder County Comprehensive Plan identifies a Conceptual Trail Corridor near Gross Reservoir; however, as the Plan states: "A Conceptual Trail Corridor is a general course that usually links specific destinations, but no landscape feature or specific location has been determined for the trail itself. Corridors are depicted on the map with a dotted symbol in order to portray their inexact location." ***Comment #779-46*** *(ID 5021)**:*** *Inconsistency between the FERC document and the Corps documents. The FERC application discusses the Environmental Pool but the DRAFT EIS does not (it is included in the Preferred Alternative). Either document should describe the "tipping point" of needing more infrastructure to support the additional 6' dam rise.* **Response #779-46:** The Environmental Pool was included in DEIS Appendix M. The Corps evaluated the potential impacts of the Environmental Pool in relation to hydrology, aquatic biological resources, and recreational activities at Gross Reservoir; this analysis was also disclosed in Appendix M. To provide clarification, a description of the Environmental Pool is included in FEIS Section 2.3.2.1. Additionally, a column was added to Table 2-11 that summarizes the Gross Dam and Reservoir features associated with the Environmental Pool.

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		None of Denver Water's existing or future water supply would be stored in this 5,000-AF Environmental Pool. Denver Water is proposing to raise the dam an additional 6 feet beyond the proposed 125 foot raise. The proposed water elevation with this Environmental Pool would be 7,406 feet and the increase in dam height would be 131 feet. The storage and release of this additional water would be managed under an Intergovernmental Agreement between Denver Water, Boulder, and Lafayette. ***Comment #779-52*** *(ID 5020)**:*** *Even assuming that a valid purpose and need exists, that full expansion of Gross Reservoir is the least environmentally damaging practicable option, and that the impacts are adequately described, the Draft documents fail to identify adequate mitigation for those impacts. a. General notes on the mitigation plans Boulder County would like to see i. Boulder County agrees with the approach to mitigation described in the draft guidance on this subject published by the Council on Environmental Quality in February 2010. "The first step in mitigation is avoiding or minimizing harm."[37] "Mitigation is an important mechanism for agencies to use to avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with their actions."[38] FOOTNOTES: [37] Draft Guidance for NEPA Mitigation and Monitoring, supra note 12 at § II (citing 40 C.F.R. § 1508.2). [38] Id.* **Response #779-52:** The Corps requires that impacts to the aquatic environment must first be avoided or minimized. Mitigation is then used to compensate for residual impacts after impacts have been reduced through avoidance and minimization. The Corps did not identify a least environmentally damaging practicable alternative (LEDPA) in the DEIS. The

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		Corps will make a determination of the LEDPA based on its review of the information and analysis contained in the FEIS, per the Corps' Section 404 regulations. ***Comment #779-45*** *(ID 5019)**:*** *Mitigation measures must be binding. "Decisions to employ mitigation measures should be clearly stated and those mitigation measures that are adopted by the agency should be identified as binding commitments to the extent consistent with agency authority, and reflected in the NEPA documentation and any agency decision documents."[39]* *FOOTNOTE: [39] Id.* **Response #779-45:** The Corps notes the comment. ***Comment #779-49*** *(ID 5018)**:*** *Mitigation measures must include mechanisms for systematic accountability. "[I]mplementing agency NEPA procedures and guidance should be employed to establish procedures that create systematic accountability and the mechanisms to accomplish those goals."[40] The Corps and FERC have broad authority under NEPA to impose mitigation conditions on applicants. "Methods to ensure implementation should include, as appropriate to the agency's underlying authority for decisionmaking, appropriate conditions in financial agreements, grants, permits or other approvals, and conditioning funding on implementing the mitigation."[41] The final mitigation plan should specify money actually budgeted and manpower assigned and provide that the approved action cannot proceed until all adopted mitigation measures are fully resourced or the lack of funding is addressed in a NEPA analysis.[42] The Corps and FERC should require that all their conditions of approval are written into contracts furthering the*

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		approved action.[43] The mitigation measures required by the Corps and FERC must include specific details outlining which parties are responsible for ensuring the mitigation is implemented and which parties are charged with ensuring it is effective. FOOTNOTES: [40] Id. (citing 40 C.F.R. § 1507.3). [41] Id. at § II.A.3. [42] Compare 32 C.F.R. § 651.15(a)(5)(d). [43] Compare id. § 651.15(a)(i)(1); id. § 651 App. C. **Response #779-49:** The Corps notes the comment. ***Comment #779-48*** *(ID 5017)**:*** *Mitigation plans must include robust monitoring procedures. "Implementing Federal agency actions and mitigation involves consideration of future impacts and conditions in an environment that is evolving and not static; therefore, monitoring can help decision-makers adapt to changed circumstances."[44] A monitoring program is essential to ensure mitigation measures are both actually implemented and ultimately effective. "Under NEPA, a federal agency has a continuing duty to gather and evaluate new information relevant to the environmental impact of its actions.[45] For agency decisions based on an EIS, the regulations require that, "a monitoring and enforcement program shall be adopted…where applicable for mitigation."[46] In addition, the regulations state that agencies may "provide for monitoring to assure that their decisions are carried out and should do so in important cases."[47] Monitoring plans and programs should be described or incorporated by reference in the agency decision documents."[48] FOOTNOTES: [44] Draft Guidance for NEPA Mitigation and Monitoring, supra note 12 at § II. [45] See 42 U.S.C. § 4332(2)(A). [46] 40 C.F.R. §1505.2(c). [47] 40 C.F.R. § 1505.3. [48] Draft Guidance for NEPA Mitigation and Monitoring, supra*

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		note 12 at § II.B. **Response #779-48:** Please see the response to Comment ID 5016. ***Comment #779-47*** *(ID 5016)**:*** *The results of relevant monitoring must be available to the public without the necessity of first filing a FOIA request.[49] The Corps should include in the permit conditions provisions related to public access to the results of relevant monitoring.[50] "Public participation and accountability should be supported through proactive disclosure of, and access to, agency mitigation monitoring reports and documents."[51] Should monitoring reveal that any defined mitigation measures are ineffective such that significant adverse environmental effects could reasonably be expected to result, the Corps should include language in the Record of Decision requiring that must go back through the NEPA process to determine the resolution to the situation.[52] To define parameters for effectiveness monitoring, the Corps and FERC should at a minimum identify a source of expertise, use measurable and replicable technical parameters, conduct a baseline study before mitigation is commenced, use a control to isolate mitigation effects and importantly, provide timely results to allow the decision-maker to take corrective action if necessary.[53] FOOTNOTES: [49] See 40 C.F.R. § 1505.3(d). "Consistent with CEQ regulations, the FOIA requires agencies to make available, through 'computer telecommunications' (e.g., agency websites), releasable NEPA documents and monitoring results which, because of the nature of their subject matter, are likely to become the subject of FOIA requests." Draft Guidance for NEPA Mitigation and Monitoring, supra note 12 at § II.C (citing 5 U.S.C. § 552(a)(2); 40 C.F.R. § 1506.6(f)). [50] 40 C.F.R. 1505.3(d). [51] Draft Guidance for NEPA Mitigation and Monitoring,*

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		supra note 12 at § II.C (citing 5 U.S.C. § 552(a)(2); 40 C.F.R. § 1506.6(f)). [50] 40 C.F.R. 1505.3(d). [51] Draft Guidance for NEPA Mitigation and Monitoring, supra note 12 at § II.A.4. [52] See 32 C.F.R. § 651.15. [53] See id. App. C (g)(1-5). **Response #779-47:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. Denver Water sends required data as specified in the FERC license to FERC on a yearly basis. In the event of a violation, FERC and Colorado Parks and Wildlife (CPW, previously called Colorado Division of Wildlife) are contacted within days for purposes of reporting the violation. ***Comment #779-44*** *(ID 5015)**:*** *Specific mitigation request: a plan to mitigate all construction impacts i. Neither FERC nor the Corps should approve any alternative expanding Gross Reservoir without conditioning that approval on binding transportation-related mitigation measures acceptable to all stakeholders. For the entire proposed route Comments of Boulder County on Moffat Collection System Draft EIS and Draft FERC License Amendment Application on both county and state highways, this plan must at a minimum address temporary and permanent impacts to local and state roadways; traffic levels; traveler safety; access to homes during medical, wildfire, or other emergencies; noise, light, and air pollution; and recreational opportunities.* **Response #779-44:** Traffic The Corps acknowledges that there would be delays caused by slow-moving construction vehicles on CR 77S, SH 72, SH 93, SH 128, U.S. Highway 287

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		(US 287), Arapahoe Road (US 287 bypass to County Line Road), County Line Road and CR 2050. During construction, the volume of construction traffic could vary day-to-day and month-to-month, depending on the type and number of construction activities taking place. Based on preliminary construction plans, about 22 haul and supply trucks could travel to Gross Dam each day on average. During the peak construction period, about 35 trucks could deliver material daily. Additional trucks could be used to remove trees and debris from the reservoir site at the appropriate time. The number of commuting workers could vary considerably. An average of 60 commuter vehicles could make daily trips to Gross Reservoir, with about 100 expected on the busiest construction days. Denver Water would require contractors to encourage carpooling to the work site. Denver Water met with CDOT to discuss the potential increase in truck traffic on SH 72 during construction as well as options for managing and mitigating Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including improving turnouts on SH 72 for slow-moving traffic. Denver Water would work with Jefferson and Boulder counties to address local traffic concerns. The Corps assumes that construction contractors would comply with health and safety plans and codes instituted by their respective companies and Denver Water. A contractor hired by Denver Water would be in charge of construction activity, including safety compliance. Denver Water also plans to have staff on-site during construction. Vehicle access at Gross Reservoir would remain unchanged via the existing north and south public access points. During construction, access in the area of the dam would be limited for safety reasons. The north side of the reservoir, however, would still

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		be accessible by Flagstaff Road from Boulder. Access to and around Gross Reservoir would not significantly change once construction is finished. Emergency vehicles would have access to the same response routes during construction that currently exist. If an emergency vehicle needed access to a closed road, access would be granted. Additionally, construction contractors would pull over to allow emergency response vehicles to pass as needed. Denver Water has a Fire Operating Plan for Gross Reservoir that was prepared with the Colorado State Forest Service. The Fire Operating Plan establishes the protocols for fire management, fire response readiness, wildfire suppression, fire prevention and fuels management. Noise, Air and Light All Gross Reservoir construction and operation activity would be conducted within the applicable noise standards and guidelines as administered by Boulder County and the EPA, as summarized in FEIS Table 5.14-1. The Project would comply with all applicable State and Federal air quality rules, and would cooperate with the CDPHE APCD in ensuring compliance. CDPHE is the State agency responsible for ensuring that Colorado attains, maintains, and enforces NAAQS. Through the APCD construction permit process and the conformity determination process, the State regulates pollutant emissions that have the potential to endanger public health and welfare. A Corps' Section 404 Permit, if issued for one of the Moffat EIS alternatives, would require that construction activities conform to Colorado State Air Quality standards. For purposes of EIS analysis, the Corps assumes construction equipment used by the contractors

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		would function as designed and conform to applicable noise emission standards. Denver Water would comply with applicable noise ordinances. In general, construction activities would occur during the day and night lighting would not be required other than for safety and security purposes. However, there may be infrequent periods during the construction phase of the Project when double or even triple work shifts would be required. Increased night lighting would be required during these infrequent periods and it would be visible from surrounding nearby residences and wildlife during this construction activity. Work hours for all construction would be limited in conformance with applicable local ordinances. Following completion of construction, lighting on the raised dam would be the same as currently exists. Therefore, no long term impacts from lighting are expected. Recreation A majority of the North Shore Recreation Area would not be impacted by the Proposed Action (i.e., would not be inundated) and is expected to remain open during construction. The North Shore Recreation Area contains 40 parking spaces that would be continued to be used by recreationists during construction and after the reservoir enlargement is complete. Vehicle access to Gross Reservoir would remain open via the north and south access points during the construction period. The north side of the reservoir would remain accessible by Flagstaff Road from Boulder and the south and west sides of the reservoir would still be accessible via CR 68 and CR 97E. Denver Water would prepare a recreation plan for the construction period to keep recreational facilities open to the public as much as possible without compromising public safety or construction progress. Certain areas would be restricted or temporarily closed by Denver Water as needed.

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		Comment #779-43 *(ID 5014)**:*** *Federal regulations provide for "avoiding the impact altogether by not taking a certain action or parts of an action."[54] Regardless of what comes of the truck versus rail analysis, but especially if rail is not selected as the preferred method of transporting construction materials (primarily aggregate), the Corps and FERC should require Denver Water to pay for improvements to Highway 72, to include the addition of bike lanes on both sides of the right of way. FOOTNOTE: [54] 40 C.F.R. § 1508.20(a).* **Response #779-43:** Denver Water met with CDOT regarding establishment of a bike path. However, Denver Water's consultant and CDOT evaluated this option and determined that establishing a bike path would not be feasible due to safety concerns, and space and cost constraints. Denver Water would do improvements to SH 72 as required by CDOT. ***Comment #779-42*** *(ID 5013)**:*** *A detailed traffic mitigation plan is needed. Presently, both Highway 128 and Highway 93 are shown on the proposed haul route map. Highway 72 route would take traffic south and east on a possibly less direct route. Highway 72 would require sight distance improvements (reflected in the Mitigation Plan (App. M)). The traffic mitigation plan should include analysis to determine whether growth induced in the Arvada area as a result of expanding Gross Reservoir will necessitate new roadway construction in communities bordering Arvada.* **Response #779-42:** Denver Water conducted a detailed haul route study as part of its FERC re-licensing application process (HDR 2012). As part of this study, Denver Water evaluated industry criteria as defined by the American Association of State Highway and

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		Transportation Officials (AASHTO) for adding a climbing lane to SH 72. Although implementing climbing lanes on SH 72 may not be warranted, AASHTO does provide alternatives for increased passing opportunities such as turnouts and shoulder use sections. Turnouts are more frequently used on low-volume roads in difficult terrain with steep grades, such as SH 72. Developing new turn-outs or improving existing turn-outs is more feasible given the existing conditions along the stretch of SH 72 that would be used for construction access to Gross Reservoir. Denver Water met with the CDOT to discuss the potential increase in truck traffic on SH 72 during construction as well as options for managing and mitigating Project-related traffic. Denver Water is evaluating alternatives for reducing construction traffic delays, including improving turnouts on SH 72 for slow-moving traffic. Denver Water has agreed with Boulder County not to use Flagstaff Road for hauling construction materials. Regarding use of other roads, Denver Water and its contractor would discuss the specific roads, restrictions and traffic management agreements after final design and prior to construction when the details about the material needs and locations are known. Denver Water would work with Jefferson and Boulder counties to address local traffic concerns. ***Comment #779-41*** *(ID 5012)**:*** *Specific mitigation request: a stream flow management plan acceptable to Grand County and Boulder County i. The Corps should allow no further dewatering of the Upper Colorado River basin via grant of a § 404 permit for this project unless such approval is conditioned on execution of a mandatory stream flow management plan that includes measurable performance standards[55],, ongoing monitoring mechanisms, and enforcement provisions*

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		satisfactory to Grand and Boulder County. Such a plan will provide for a more natural hydrographic cycle in Grand County (spring flushing flows, etc.). FOOTNOTE: [55] Measurable performance standards were recently made binding in the 2008 Final Compensatory Mitigation Rule promulgated jointly by the Corps of Engineers and EPA. See 73 Fed. Reg. 19594 (April 10, 2008) ("Compensatory Mitigation Rule"). **Response #779-41:** Please see the response to Comment ID 5090. ***Comment #779-35*** *(ID 5011)**:*** *"Mitigation commitments should be structured to include adaptive management in order to minimize the possibility of mitigation failure."[56] Continuing responsibility for a permit applicant beyond the compensation / mitigation / enhancement required at time of permit issuance may be a hurdle that Denver Water must surmount as an institution, but that is no reason that, e.g., adaptive management of the stream flow can't be a bridge over the uncertainties that remain after the Final EIS analysis. FOOTNOTE: [56] Memorandum for Heads of Federal Departments and Agencies from Council on Environmental Quality, Draft Guidance for NEPA Mitigation and Monitoring, § II.A.4.* **Response #779-35:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Comment #779-34*** *(ID 5010)**:*** *The Corps should tie mitigation monitoring to the Corps and FERC's Environmental Management Systems.[57] FOOTNOTE: [57] See Exec. Order No. 13423, 72 Fed. Reg. 3919 (Jan. 26, 2007), later*

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		codified into law by the 2009 Omnibus Appropriations Act signed on Feb. 17, 2009, and associated instructions for implementation, available at http://www.epa.gov/oaintrnt/documents/ eo13423_instructions_508.pdf. **Response #779-34:** The Corps is acting in a regulatory role with respect to this EIS development. The Executive Order mentioned applies to a Federal agency implementing its own project or program, and does not apply to this regulatory situation. However, appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. ***Comment #779-33*** *(ID 5009)**:*** *Specific mitigation request: conservation guarantees from water providers i. The Corps and FERC should require an adopted conservation plan for any water provider with a Denver Water contract that is at least as stringent as Denver Water's conservation plan.* **Response #779-33:** All of Denver Water's distributors follow Denver Water's State-approved conservation plan and customers are eligible for the same rebates and other incentives provided by Denver Water to its customers. In other words, if one receives treated water from Denver Water, one is subject to the same conservation rules and rebates as those living within the City and County of Denver. Denver Water is planning to update its conservation plan with the State and the distributors will be listed individually so readers will be able to see which water providers are covered by Denver Water's conservation plan.

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		Comment #779-32 *(ID 5008)**:*** *As a condition of approval, the Corps and FERC should consider prohibit the use of any additional water stored in a newly expanded Gross Reservoir west of State Highway 93, in support of "preserv[ing] the open and undeveloped character of the land" as provided in the federal Colorado Northern Front Range Mountain Backdrop Protection Study Act of 2009.* **Response #779-32:** FEIS Section 5.17.2.2 includes a discussion of the Colorado Northern Front Range Mountain Backdrop Protection Study Act of 2009 as follows: "Boulder County and Jefferson County open space programs have acquired properties to the immediate north and south [of the Leyden Gulch Reservoir Site] as part of the Front Range Mountain Backdrop/Foreground Preservation Project to ensure that the foothills, hogbacks, and other key Front Range visual areas are protected. Preserving view corridors have been a primary purpose of the Jefferson County open space program for over 25 years (Jefferson County 2008), and similar policies are reflected in the Jefferson County Comprehensive Plan and City of Arvada Comprehensive Plan. These plans state that scenic views along highways should be protected, including Colorado SH 93 (Jefferson County 2011). The Arvada plan states, "Arvada would identify and maintain appropriate mountain view corridors from public streets and places as new development occurs" (City of Arvada 2005). There are many ways to accomplish this task and the Corps suggests that local municipalities and counties develop land-use plans which meet the Colorado Northern Front Range Mountain Backdrop Protection Study Act of 2009 and the desire of local communities.

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		Comment #779-37 *(ID 5007)**:*** *Specific mitigation request: in-stream flows below the dam – the "Environmental Pool" i. The Boulder City Council has approved a draft intergovernmental agreement between Boulder, Lafayette and Denver Water for creation of a 5,000 acre foot "environmental pool" which would require increasing the height of the dam another six feet over the 125' proposed in the Draft EIS. The pool would allow for increased in-stream flows to South Boulder Creek below the dam during winter and dry months. Though it lacks the detailed analyses of habitat benefits/impacts we'd like to see, Boulder County supports this idea in concept. We also believe such a pool could be established without the dam expansion proposed in the Draft EIS. That said, should the Corps grant a § 404 permit for any expansion of Gross Reservoir, the Corps should require Denver Water design and implement a project that support full implementation of the "Environmental Pool" as described in the IGA between Denver Water, Boulder, and Lafayette, as necessary but not sufficient mitigation for impacts on in-stream flows and wildlife habitat in South Boulder Creek below the dam.* **Response #779-37:** Please see the response to Comment ID 5088. ***Comment #779-36*** *(ID 5006)**:*** *Specific mitigation request: additional hydropower capacity i. The FERC application states that after final design Denver Water will evaluate modifications to increase the efficiency of the turbine equipment to determine whether such improvements would be economical (FERC application page A-3 and B-1 item 2). The only modification proposed in this FERC application is to add a pressure-releasing value ("PRV") to lower the inlet pressure in order to accommodate the increased head due to the dam*

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		water level rise. The addition of the PRV would improve operating efficiency, resulting in an additional 5 million kWh/year (an increase of 16.5%). If adding additional hydroelectric capacity beyond that provided by the PRV is feasible, why is it not evaluated in this FERC application? One reason seems to be that Denver Water sells power generated at Gross Reservoir to Xcel Energy under a power purchase agreement that limits generation capacity to the existing 8,100 kW.[58] The FERC application states that this agreement expires in 2027. The Corps and FERC should require Denver Water to explain why that power purchase agreement cannot be modified to allow additional capacity in light of the additional head generated by enlarging Gross Reservoir. FOOTNOTE: [58] Draft FERC Application at B-6, Item 5-iii. **Response #779-36:** The Corps notes the comment and believes this issue would be addressed in the FERC amendment. ***Comment #779-31*** *(ID 5005)**:*** *Specific mitigation request: compensation for land lost to inundation i. Federal regulations allow for compensating for impacts "by replacing or providing substitute resources or environments."[59] Denver Water should provide compensation for the permanent loss of 456 acres of shoreline, tributary, and bank vegetation that would result from expansion of Gross Reservoir under the Proposed Action. In addition, should Gross Reservoir be expanded, under its existing contract with Denver Water Arvada will have more water to support development in the Highway 72/93 area. This increased population will put increased pressure on Boulder County parks and open space resources along the Highway 93 corridor. Preservation of parcels along the Highway 93 corridor could help mitigate the significant impacts to Boulder County*

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		residents as well as local plant and animal habitats. FOOTNOTE: [59] 40 C.F.R. § 1508.20(e). **Response #779-31:** The Corps notes the comment. ***Comment #779-30*** *(ID 5004)**:*** *This compensation should be accomplished through a replacement of land of at least equal habitat significance on publicly owned forested lands. Priority for lands identified for compensation should be given to areas adjacent to US Forest Service land or Boulder County-owned parcels (if lands suitable for compensation are adjacent to county open space properties). Suitable parcels include, in order of priority (1) parcels within Boulder County, (2) the parcel bordering the eastern edge of Highway 93 immediately north of the parcel owned by the State Land Board, (3) the parcel owned by the State Land Board, aka "Section 16," (4) Leyden Gulch, and (5) other parcels north of Highway 72 that will aid in achieving the goals of the Rocky Flats National Wildlife Refuge, the Front Range Mountain Backdrop project, and the City and County of Boulder's efforts to create an urban buffer between Boulder and Jefferson counties to mitigate growth-related impacts, such as degradation to air quality and viewsheds as well as increased traffic congestion on local roads.* **Response #779-30:** Denver Water is working with the USFS and Boulder County to address changes in landscape as a result of the proposed Project. ***Comment #779-14*** *(ID 5003)**:*** *Boulder County is willing to work with Denver Water in determining suitable replacement ratios and to also identify areas suitable for offsetting the loss of vegetation communities. Vegetation clearance*

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		offsets should be determined by using a ratio of the area to be conserved versus the area to be cleared. This ratio should be determined using indicators of vegetation condition and significance. At a minimum, a 2:1 ratio should apply to areas with patches of native vegetation, to 5:1 for areas of intact vegetation. **Response #779-14:** A Corps' Section 404 Permit, if issued, would include mitigation for impacts identified by the EIS analysis. ***Comment #779-26*** *(ID 5002)**:*** *Most of the riparian vegetation impacts are result of inundation of inlets to the reservoir (4.08 total acres, inundation of 2,600 feet of South Boulder Creek and 2,350 feet of Winiger Gulch above the reservoir). Riparian vegetation is a very limited resource and thus difficult to mitigate completely, necessitating a detailed mitigation plan for this area. Appendix M only provides proposed mitigation for loss of riparian vegetation (four acres) and wetland resources (1.95 acres) along the elevated pool level. However, the Draft EIS (including Appendix M) does not provide for replacement of the remaining vegetation communities permanently lost due to inundation. The creation of "new" riparian areas, as described in the Proposed Mitigation Plan (Appendix M), along the elevated pool level is neither assured nor a sufficient offset to the permanent loss of over 450 acres of vegetation communities, including areas determined to have high value.* **Response #779-26:** As a condition of a Section 404 Permit, if issued, the Corps would have a performance clause that would require Denver Water to create a certain amount of riparian area. Additionally, as described in the response to Comment ID 4997, Denver Water has

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		partnered with the USFS to restore lands on National Forest. ***Comment #779-3*** *(ID 5001)**:*** *Boulder County opposes Denver Water purchasing credits from a wetland mitigation bank outside the South Boulder Creek watershed. Appendix M (Proposed Mitigation Plan) provides two options to compensate for the loss of 1.95 acres of wetlands under the Proposed Action. One option would be for Denver Water to purchase sufficient credits from an approved wetland mitigation bank. Denver Water's first attempt at replacing lost wetlands should occur within the Gross Reservoir expansion area, or greater South Boulder Creek watershed in Boulder County.* **Response #779-3:** The Corps prefers an established wetlands bank to be used to mitigate the loss of wetlands. ***Comment #779-25*** *(ID 5000)**:*** *Specific mitigation request: compensation for impacts to wildlife i. Federal regulations allow for rectifying impacts by "repairing, rehabilitating, or restoring the affected environment."[60] The Draft documents currently make no mention of any sort of mitigation action for loss of big game habitat. Boulder County has concerns regarding mitigation for the loss of potential elk habitat (vegetation communities). Every effort should be made to retain elk winter concentration area, severe winter range habitat, and the potential elk calving locations in riparian areas in the proposed Gross Reservoir expansion area. FOOTNOTE: [60] Id. § 1508.20(c).* **Response #779-25:** Please see the response to Comment ID 4999 related to elk.

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		The impacted area of non-crucial big game habitat (e.g., mule deer, black bear, and mountain lion) represents a very small percentage of the available habitat in the surrounding area. Additionally, the portions of South Boulder Creek and Winiger Gulch that would be inundated above the reservoir would have a minor effect on big game movement. Denver Water collaborated with CPW to prepare a Fish and Wildlife Mitigation Plan (see FEIS Appendix M) which includes re-establishment of plant communities lost during construction activities. ***Comment #779-24*** *(ID 4999)**:*** *The Corps and FERC should impose restrictions for when forested areas are cleared to avoid nesting birds and wintering elk.[61] FOOTNOTE: [61] See Draft EIS, Chap. 4, page 273.* **Response #779-24:** Nesting birds are protected under the Migratory Bird Treaty Act, and land-clearing activities would be timed to avoid the breeding season (see DEIS Section 4.7.7). Winiger Ridge would be used as a staging area for tree removal. The main access points would include SH 72, Gross Dam Road, and across Winiger Ridge using Forest Road 359 and CR 68. Winiger Ridge is used by elk as severe winter range and winter concentration area, but is not identified as elk calving habitat (see DEIS Figure 3.7-2). Additionally, the proposed Project would inundate only the edges of Winiger Ridge and the majority of habitat would remain intact. Tree removal would be concurrent with other construction activities and would not take place during winter months. Additional information has been added to the FEIS regarding the elk migration corridor near Gross Reservoir. An analysis of displacement effects to elk during construction has also been added to the wildlife analysis in FEIS

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		Sections 3.9 and 5.9. Denver Water would work with the USFS and CPW to identify the best times for tree removal activities as to reduce the impact to wildlife in the area. ***Comment #779-2*** *(ID 4998)**:*** *The Corps and FERC should require Denver Water commit to a management plan for all affected forested area in the Gross Reservoir storage basin (to be further defined). i. The Draft EIS is nearly silent on this issue. The FERC License Amendment Application Project No. 2035 alludes to an existing Forest Management Plan on page E-7 and Denver Water's intent to developing a forest treatment plan "...in cooperation with the USFS and other stakeholders in an on-going effort separate from this FERC process."* **Response #779-2:** Denver Water would develop the final tree removal plan in cooperation with the USFS, Colorado State Forest Service, and Boulder County. Denver Water has proposed working with the USFS to identify recycling opportunities. The current Forest Management Plan is under the authority of FERC in a joint effort with the USFS. The Corps believes that Denver Water would comply with any conditions required by FERC. ***Comment #779-23*** *(ID 4997)**:*** *The Corps and FERC should require Denver Water commit to a forest restoration/wildfire mitigation program covering all affected forested area in the Gross storage basin. A firm commitment to time, funds, equipment and other resources, as well as a schedule for preparing and completing the plan within the Gross Reservoir basin that involves all stakeholders and is at least initiated concurrently with any enlargement of Gross Reservoir while site disturbance and equipment are already in the area*

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		should be an approval condition for federal permitting. **Response #779-23:** In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million over a five-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects will take place around and upstream of Denver Water reservoirs. Restoration also will help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Refer to FEIS Appendix G for a description of the Forests to Faucets Partnership and other cooperative efforts. ***Comment #779-22*** *(ID 4996)**:*** *The restoration plan should be a collaborative effort with area property owners; fire protection districts; Colorado State Forest Service; USFS; Boulder County Parks & Open Space, Land Use, and Transportation Departments and in accordance with the Front Range Fuel Treatment Partnership Roundtable guidance. (The USFS, CSFS and Denver Water are all Roundtable members.)* **Response #779-22:** Denver Water would incorporate existing vegetation plans into its re-vegetation plan. ***Comment #779-1*** *(ID 4995)**:*** *The restoration plan should address prevention of ad hoc off-road vehicle trails where none existed before as well as appropriate actions related to the mountain pine beetle.*

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		Response #779-1: Post-construction, the portion of temporary roads remaining above the normal reservoir high water elevation would be restored and seeded. Denver Water is proposing to relocate existing trails that would be inundated by the expanded reservoir. Denver Water would not expand the trail system. The forests at Gross Reservoir have not been affected by the current outbreak of mountain pine beetle in the Rockies, and have a moderate to good chance of not being affected. Therefore, it is not appropriate to forecast the potential changes in forest structure in the FEIS. Information about the relationship of the Project and mountain pine beetle has been added to the to the vegetation analysis in FEIS Sections 4.6.7 and 5.7. Furthermore, the proposed Project would not affect the current pine beetle outbreak. Denver Water would also work with the USFS to ensure that forest clearing and revegetation would be consistent with National Forest Standards. In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million over a five-year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects will take place around and upstream of Denver Water reservoirs. Restoration also will help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Refer to FEIS Appendix G for a

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		description of the Forests to Faucets Partnership and other cooperative efforts. ***Comment #779-17*** *(ID 4994)**:*** *Specific mitigation request: compensation for construction impacts to Walker Ranch Open Space visitors i. The Draft EIS should be revised to include specific mitigation to visitors of this open space. Construction impact mitigation identified in the Draft EIS should include restrictions on hours/periods (e.g., weekdays and daylight hours only) of construction.[62] FOOTNOTE: [62] Id. at Chap. 4, page 364.* **Response #779-17:** The Corps has reviewed the recreation analysis and has provided additional information and revisions for clarity in FEIS Section 5.15. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. No direct effects to Walker Ranch are anticipated. The proposed construction activities associated with the enlargement of Gross Reservoir are not predicted to exceed relevant standards or guidelines. On-site construction noise may periodically exceed the EPA noise threshold of 70 A-weighted decibel scale for public exposure, but the public would not be exposed to these levels on a continuous basis. The noise levels described in the EIS are predicted at distances of less than 50 feet from the source and would be temporary and remote. Sound travels omni-directionally (i.e., does not travel upward or downward), which means that it dissipates outward in all directions the further away from its source it travels. As a general rule, when the radius or distance that a sound wave travels has doubled, the sound level is reduced by 6 decibels.

Comment-Response Report (Jurisdictions/Municipalities Part C)

Comment Information	Comment	Comments and Responses
		All Gross Reservoir construction and operation activity would be conducted within the applicable noise standards and guidelines as administered by Boulder County and the EPA, as summarized in FEIS Table 5.14-1.

Comment-Response Report (Jurisdictions/Municipalities Part C)

Comment Information	Comment	Comments and Responses
Comment #792 Jim Idema, President South Platte Enhancement Board	From: Jim Idema [mailto: [redacted] Sent: Wednesday, March 17, 2010 2:28 PM To: MOFFAT.EIS@usace.army.mil Subject: Permit Application NOW-2002080762-DEN Please see attached. - 031710 Moffat DEIS Comments from SPEB.doc	***Comment #792-2*** *(ID 4774)**:*** *The South Platte Enhancement Board (SPEB) respectfully submits the following comments on the Moffat Collection System Project (Permit Application NOW-2002080762-DEN) Draft Environmental Impact Statement (DEIS) and Section 404 Permit, collectively referred to as the "Moffat" project in this document. SPEB also requests that it be added to the distribution list for all actions on this project. SPEB was created as a part of the South Platte Protection Plan, as the selected alternative following the assessment of the South Platte River for possible Wild and Scenic designation. Two of SPEB's primary charges are the protection of the Outstanding Resource Values (ORV's) of the South Platte, and ensuring that the South Platte Protection Plan (SPPP) is implemented and maintained. SPEB's comments are therefore limited to potential impacts to the South Platte, rather than the full scope of the DEIS. The SPPP includes a voluntarily imposed 20 year moratorium by Denver Water on development of the Two Forks Right-of-Way on the South Platte, and includes a process to assess alternatives for the development of the yield anticipated from the previously proposed Two Forks Reservoir project. . The Moffat project appears to support that concept by enlarging an existing reservoir, and reducing the likelihood of the need for a major storage project on the South Platte River. The SPEB has discussed the Moffat Project, and potential impacts to the river segments, however; the Board has not taken a position to either support or oppose the project. Individual members of the Board represent interests including environmental organizations, water providers, local governments and others and may be submitting additional comments on this on behalf of those interests or organizations. SPEB member Don Kennedy, who represents Denver Water abstains from these comments.*

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	Attachments: South Platte Enhancement Board March 17, 2010 Scott Franklin, Moffat EIS Project Mgr US Army Corps of Engineers 9307 South Wadsworth Blvd, Littleton, CO 80128 VIA Email: Moffat.eis@usace.army.mil RE: Moffat Collection System Project (Permit Application NOW-2002080762-DEN) DEIS and Section 404 Permit Comments. Dear Mr. Franklin, The South Platte Enhancement Board (SPEB) respectfully submits the following comments on the Moffat Collection System Project (Permit Application NOW-2002080762-DEN) Draft Environmental Impact Statement (DEIS) and Section 404 Permit, collectively referred to as the "Moffat" project in this document. SPEB also requests that it be added to the distribution list for all actions on this project. SPEB was created as a part of the South Platte Protection Plan, as the selected alternative following the assessment of the South Platte River for possible Wild and Scenic designation. Two of SPEB's primary charges are the protection of the Outstanding Resource Values (ORV's) of the South Platte, and ensuring that the South Platte Protection Plan (SPPP) is implemented and maintained. SPEB's comments are therefore limited to potential impacts to the South Platte, rather than the full scope of the DEIS. The SPPP includes a voluntarily imposed 20 year moratorium by Denver Water on development of the Two Forks Right-of-Way on the South Platte, and includes a process to assess alternatives for the development of the yield anticipated from the previously proposed Two Forks Reservoir project. . The Moffat project appears to support that concept by enlarging an existing reservoir, and reducing the likelihood of the need for a major storage project on the South Platte River. The SPEB has discussed the Moffat Project, and potential impacts to the river segments, however, the Board has not taken a position to either support or oppose the project. Individual members of the Board represent interests including environmental organizations, water providers, local governments and others and may be submitting additional comments on this on behalf of those interests or organizations. SPEB member Don Kennedy, who represents Denver Water abstains from these comments. While the Moffat project is located on the north portion of the Denver Water system, the interconnected nature of the north and south portions of the systems, a change to either system directly affects the other. The DEIS addresses these interactions repeatedly, in terms of reservoir level, stream flows, water quality, sedimentation, fisheries, recreation and wildlife.	**Response #792-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #792-1*** *(ID 4775)**:*** *While the Moffat project is located on the north portion of the Denver Water system, the interconnected nature of the north and south portions of the systems, a change to either system directly affects the other. The DEIS addresses these interactions repeatedly, in terms of reservoir level, stream flows, water quality, sedimentation, fisheries, recreation and wildlife. Because of the focus on the north portion of the system, SPEB believes that the South Platte system is not addressed as completely as it could be. The following are the key concerns that SPEB identified in the DEIS: 1. With a proposed shift in summer/winter flows through the Roberts Tunnel, there are subsequent shifts in stream flows, primarily in the North Fork of the South Platte, reservoir levels, and treatment plant operations. On page 3-58/59 of the DEIS, the SPPP is noted, and the language implies that there may not be compliance with the terms of the SPPP. a. Denver Water affirmed their intent to abide by all elements of the SPPP in the February 2010 SPEB Board meeting. SPEB requests that Denver Water clarify their acknowledgement of abiding by all elements of the SPPP in the Final EIS b. SPEB requests that if the conditions of the Blue River Decree are modified or changed, that Denver Water provide a clear operating schedule or additional details of how flows might be changed moving forward. There may be incidental benefit to the natural flows for the fishery on the North Fork of the South Platte River during the operation of the Roberts Tunnel through the winter months. 2. The DEIS identifies an increase in flow in the North Fork of the South Platte during the summer in all alternatives. This has the potential of*

Comment Information	Comment	Comments and Responses
	Because of the focus on the north portion of the system, SPEB believes that the South Platte system is not addressed as completely as it could be. The following are the key concerns that SPEB identified in the DEIS: 1. With a proposed shift in summer/winter flows through the Roberts Tunnel, there are subsequent shifts in stream flows, primarily in the North Fork of the South Platte, reservoir levels, and treatment plant operations. On page 3-58/59 of the DEIS, the SPPP is noted, and the language implies that there may not be compliance with the terms of the SPPP. a. **Denver Water affirmed their intent to abide by all elements of the SPPP in the February 2010 SPEB Board meeting. SPEB requests that Denver Water clarify their acknowledgement of abiding by all elements of the SPPP in the Final EIS** b. **SPEB requests that if the conditions of the Blue River Decree are modified or changed, that Denver Water provide a clear operating schedule or additional details of how flows might be changed moving forward. There may be incidental benefit to the natural flows for the fishery on the North Fork of the South Platte River during the operation of the Roberts Tunnel through the winter months.** 2. The DEIS identifies an increase in flow in the North Fork of the South Platte during the summer in all alternatives. This has the potential of increased sediment transport, and increased bed and bank erosion. a. **SPEB encourages a monitoring effort and mitigation if resultant bed and bank erosion acceleration is determined.** b. **SPEB acknowledges that the increased summer flows will probably enhance water recreation (primarily kayaking) as one of the three Outstanding Resource Values (ORV) on the North Fork of the South Platte.** 3. The DEIS identifies a decrease in flow in the North Fork of the South Platte during winter, and will likely result in increases in the concentrations of copper, iron, and nickel. a. **SPEB encourages a monitoring effort on metals, concentrations and mitigation if resultant concentrations exceed standards.** On Behalf of the South Platte Enhancement Board, Jim Idema SPEB President	*increased sediment transport, and increased bed and bank erosion. a. SPEB encourages a monitoring effort and mitigation if resultant bed and bank erosion acceleration is determined. b. SPEB acknowledges that the increased summer flows will probably enhance water recreation (primarily kayaking) as one of the three Outstanding Resource Values (ORVs) on the North Fork of the South Platte. 3. The DEIS identifies a decrease in flow in the North Fork of the South Platte during winter, and will likely result in increases in the concentrations of copper, iron, and nickel. a. SPEB encourages a monitoring effort on metals, concentrations and mitigation if resultant concentrations exceed standards.* **Response #792-1:** The Proposed Action would not change the likelihood of conditions under which Denver Water may reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs to insure no loss of yield. The Proposed Action would not affect the South Platte Protection Plan (SPPP) agreement or Denver Water's ability to meet minimum outflows from Eleven Mile Canyon and Cheesman reservoirs. Any reduction in bypass flows or other proposed flow regimes would be a function of Denver Water's existing operations, not the proposed Moffat Project. If it is determined that operations under the SPPP would result in loss of existing or future water supplies, Denver Water could reduce bypass flows below Eleven Mile Canyon and Cheesman reservoirs, however, that would be a function of Denver Water's existing operations and not an impact of the proposed Moffat Project. Operations under the SPPP are a function of Denver Water's existing operations and reasonably independent of impacts from the proposed Moffat Project. Since the Proposed Action increases Denver Water's firm yield, system reliability and flexibility, the frequency

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		and magnitude of bypass flow reductions below Eleven Mile Canyon and Cheesman reservoirs, if needed, could potentially decrease. The Proposed Action would not decrease Denver Water's ability to meet the terms and conditions of the SPPP agreement in which case there would be no negative impact on South Platte River ORVs due to the Project. The portion of Section 3.1.5.7, which discusses the SPPP and minimum bypass below Eleven Mile Canyon and Cheesman reservoirs was revised. Denver Water asserts that it has and would continue to fully comply with the requirements of the Blue River Decree. Conditions of the Blue River Decree would not be modified or changed under the Moffat Project. Roberts Tunnel inflows to the North Fork South Platte River appear to have a mitigating effect on background concentrations of some metals. CDPHE has performed a total maximum daily load (TMDL) on a portion of the North Fork South Platte River and concluded that natural drainage and impacts from abandoned mines are the source of contamination. The EIS discusses this TMDL and notes that the Roberts Tunnel has a mitigating effect. The metal of particular concern that is addressed by the TMDL is copper. It is noted that copper concentrations exceed the stream standard downstream of the tunnel, although the concentrations are much lower than upstream of the tunnel. Thus, changing deliveries through the Roberts Tunnel would not be a cause for concentrations to exceed stream standards, as the source of copper is upstream of the Roberts Tunnel discharge. In addition, an adaptive management plan will be required as part of a Section 404 Permit.

Comment-Response Report (Jurisdictions/Municipalities Part C)

Comment Information	Comment	Comments and Responses
Comment #801 Dan Mathes City of Louisville 749 Main Street Louisville, CO 80027 and Thomas A. Phare, Director of Public Works City of Louisville 749 Main Street Louisville, CO 80027	From: Dan Mathes [mailto:danm@louisvilleco.gov] Sent: Wednesday, March 17, 2010 8:53 PM To: MOFFAT.EIS@usace.army.mil Subject: Comments - Moffat EIS Mr. Franklin, Please find the City of Louisville's comments on Denver Water's Moffat Collection System Project Draft EIS. Thank you, Dan Mathes City of Louisville 303.335.4604 DanM@LouisvilleCO.gov - Moffat DEIS Comment.pdf	***Comment #801-1*** *(ID 4977)**:*** *The City of Louisville (Louisville) appreciates the opportunity to review and comment upon the U.S. Corps of Engineers (Corps) Moffat Collection System Project Draft EIS (Draft EIS). The Draft EIS indicated that there will be impacts to South Boulder Creek from which, Louisville obtains the majority of its municipal water supply. Louisville is also a member of the Northern Colorado Water Conservancy District and the Municipal Subdistrict of the Northern Colorado Water Conservancy District. While the Draft EIS has alleviated several concerns of the City, a few remain. Concerns with projects impacts on water quality and quantity remain. The City briefly discusses the concerns and what it would view as acceptable conditions to alleviate those concerns below:* **Response #801-1:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #801-2*** *(ID 4978)**:*** *Comment 1 – Water Quality: The conclusions of the Draft EIS, in regards to water quality, are that there will be some, but negligible, changes to water quality from the project within the South Boulder Creek Watershed; stream and reservoir. Denver Water utilized data from 2005-2007 for their analysis, but stated in the Draft EIS (Sec 4.1.1.1) that water quality data are not available to more fully evaluate potential impacts. Denver Water should monitor the water quality of native water, west slope imports, Gross Reservoir, and releases from Gross Reservoir and share that information with downstream users. Especially drinking water suppliers, since changes in various constituents (organic materials, nutrients, etc.) can impact how the facilities meet drinking water regulations. It is suggest that Denver Water*

Comment Information	Comment	Comments and Responses
	Attachments: City of Louisville | Department of Public Works COLORADO • SINCE 1882 March 17, 2010 [via email] Mr. Scott Franklin, Moffat EIS Project Mgr US Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128 E-mail: moffat.eis@usace.army.mil Re: City of Louisville Comments on the Denver Water Moffat Collection System Project Draft EIS (404 Permit Application NWO-2002-80762-DEN) Dear Mr. Franklin: The City of Louisville (Louisville) appreciates the opportunity to review and comment upon the U.S. Corps of Engineers (Corps) Moffat Collection System Project Draft EIS (Draft EIS). The Draft EIS indicated that there will be impacts to South Boulder Creek from which, Louisville obtains the majority of its municipal water supply. Louisville is also a member of the Northern Colorado Water Conservancy District and the Municipal Subdistrict of the Northern Colorado Water Conservancy District. While the Draft EIS has alleviated several concerns of the City, a few remain. Concerns with projects impacts on water quality and quantity remain. The City briefly discusses the concerns and what it would view as acceptable conditions to alleviate those concerns below: Comment 1 – Water Quality: The conclusions of the Draft EIS, in regards to water quality, are that there will be some, but negligible, changes to water quality from the project within the South Boulder Creek Watershed; stream and reservoir. Denver Water utilized data from 2005-2007 for their analysis, but stated in the Draft EIS (Sec 4.1.1.1) that water quality data are not available to more fully evaluate potential impacts. Denver Water should monitor the water quality of native water, west slope imports, Gross Reservoir, and releases from Gross Reservoir and share that information with downstream users. Especially drinking water suppliers, since changes in various constituents (organic materials, nutrients, etc.) can impact how the facilities meet drinking water regulations. It is suggest that Denver Water take the lead on setting up a South Boulder Creek Water Users group to facilitate corporative management and protection of the watershed. The group could be utilized as a **forum for understanding the stream, various user's needs and operations, addressing problems** (perceived or actual) within the watershed. The group could address concerns about Pine Beetles and fires as-well. • 749 Main Street, Louisville, Colorado 80027 • P - (303) 335-4608 F - (303) 335-4550 • www.louisvilleco.gov •	*take the lead on setting up a South Boulder Creek Water Users group to facilitate corporative management and protection of the watershed. The group could be utilized as a forum for understanding the stream, various user's needs and operations, addressing problems (perceived or actual) within the watershed. The group could address concerns about Pine Beetles and fires as-well.* **Response #801-2:** Denver Water's Conceptual Mitigation Plan is contained in FEIS Appendix M. Denver Water currently belongs to the District 6 Water Users Association, which includes the South Boulder Creek Basin and other basins in the same vicinity. ***Comment #801-3*** *(ID 4979)**:*** *Comment 2 – Water Quantity: The accounting methodology utilized by Denver Water should be reviewed and revised if deemed necessary as condition of this Project. With the increased flows and reservoir storage proposed as part of the project, existing accounting discrepancies that potentially impact native flows will become much more significant, but more difficult to see in the larger reservoir. The native flows of South Boulder Creek should be delivered through the project and any discrepancies in Denver Water's accounting should favor the native flows.* **Response #801-3:** The accounting for Gross Reservoir is done in the same manner as most other on-stream reservoirs throughout Colorado, including Green Mountain Reservoir, Pueblo Reservoir, Ruedi Reservoir, Cherry Creek Reservoir, Rio Grande Reservoir, Button Rock Reservoir, Turquoise Reservoir, and Twin Lakes Reservoir. Furthermore, the accounting for Gross Reservoir meets the requirements of the Division Engineer, who is responsible for water

Comment Information	Comment	Comments and Responses
	Comment 2 Water Quantity: The accounting methodology utilized by Denver Water should be reviewed and revised if deemed necessary as condition of this Project. With the increased flows and reservoir storage proposed as part of the project, existing accounting discrepancies that potentially impact native flows will become much more significant, but more difficult to see in the larger reservoir. The native flows of South Boulder Creek **should be delivered through the project and any discrepancies in Denver Water's accounting** should favor the native flows. Comment 3 – Water Quantity: If the project goes forward, the City is not opposed to the proposed mitigation (minimum stream flows **from an "environmental pool" in Gross Reservoir) on South Boulder Creek, but existing water rights,** that were extensively litigated, must not be injured. The City of Louisville owns or has a partial interest in the majority of winter water rights on the creek which are in priority during the low flows that the mitigation is meant to address. The proposed mitigation does not provide enough detail to determine how the existing rights will be protected. It is suggest that prior approval from the potentially impacted water users on the operational details (accounting, losses, bypasses, etc.) of the project be required prior to implementation of the program. Louisville **understands Denver Water's** aspiration to expand the Moffat Collection System, to firm up their water supply and provide additional reliability to their raw water system, but such improvements could negatively impact other water users. **South Boulder is an essential part of Louisville's water** supply and the protection of its flows and high quality are very important to the City. Sincerely, Thomas A. Phare Director of Public Works ● 749 Main Street, Louisville, Colorado 80027 ● **P** - (303) 335-4608 F - (303) 335-4550 ● www.louisvilleco.gov ●	rights administration in the South Platte Basin of Colorado. In the case of Gross Reservoir, the Water Commissioner, who works for the Division Engineer, instructs Denver Water personnel how much water to release to downstream diverters on a daily basis. Over or under releases of natural inflow are out of Denver Water's control. While the method of estimating and passing the natural inflow to Gross Reservoir is not perfect, there is no systematic injury to downstream water rights. There are days when the water being released from Gross Reservoir to downstream users exceeds the natural inflow and there are days when the reverse is true. Overall, the amount of water passed to the downstream users matches their entitlement. The phenomenon of over releases on some days and under releases on other days is true of all on-stream reservoirs because it is not possible to know the natural inflow to an on-stream reservoir until the water has already entered the reservoir. Therefore, the Water Commissioner must take an educated guess of what the natural inflow is going to be each day, set the release rate to that number, and compensate for any over or under release in the day or days that follow. Denver Water is not recommending any changes to the methods for water rights accounting or operations at Gross Reservoir after the enlargement. Denver Water would continue passing all natural inflow to which it is not entitled to downstream water users in accordance with the Division Engineer. ***Comment #801-4*** *(ID 4980)**:*** *Comment 3 – Water Quantity: If the project goes forward, the City is not opposed to the proposed mitigation (minimum stream flows from an "environmental pool" in Gross Reservoir) on South*

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		Boulder Creek, but existing water rights, that were extensively litigated, must not be injured. The City of Louisville owns or has a partial interest in the majority of winter water rights on the creek which are in priority during the low flows that the mitigation is meant to address. The proposed mitigation does not provide enough detail to determine how the existing rights will be protected. It is suggest that prior approval from the potentially impacted water users on the operational details (accounting, losses, bypasses, etc.) of the project be required prior to implementation of the program. **Response #801-4:** Denver Water is not recommending any changes to the methods for water rights accounting or operations at Gross Reservoir after the enlargement. ***Comment #801-5*** *(ID 4981)**:*** *Louisville understands Denver Water's aspiration to expand the Moffat Collection System, to firm up their water supply and provide additional reliability to their raw water system, but such improvements could negatively impact other water users. South Boulder is an essential part of Louisville's water supply and the protection of its flows and high quality are very important to the City.* **Response #801-5:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment Information	Comment	Comments and Responses
Comment #803 John Kossler, Board Member Middle Park Conservation District P.O. Box 265, 106 South 2nd Street Kremmling, CO 80459	From: John Kossler [mailto:jkoss70@gmail.com] Sent: Wednesday, March 17, 2010 8:18 AM To: MOFFAT.EIS@usace.army.mil Cc: Koblitz, Bonnie - Kremmling, CO; David Abbott; john longhill; [redacted] Subject: Moffat Collection System Project Draft EIS - Comments To whom it may concern: As a board member of the Middle Park Conservation District, I ask that you please accept the attached comments on the Moffat Collection System Project Draft EIS. Please feel free to contact me in regards to the submittal of these comments. John Kossler [redacted] - MoffatCollectionSymDraftEIS_Comments_MPCD_031710.pdf	***Comment #803-11*** *(ID 4982)**:*** *Please accept the enclosed comments on the proposed Moffat Collection System Project Draft EIS from Middle Park Conservation District (MPCD). MPCD is one of Colorado's 76 conservation districts established under the Soil Conservation Act of 1937 to address conservation and stewardship of Colorado's natural resources. MPCD is responsible for on-the-ground conservation projects including: small acreage management, protection of rangeland and wildlife habitat, improving water delivery systems, forest health, improving water quality, reducing soil erosion, managing noxious weeds, and renewable energy and energy conservation projects. The District covers all of Grand and Summit Counties, which is the same resource area that will be directly impacted by implementation of the Moffat Collection System Project. The MPCD hopes that the following comments will help the Army Corps of Engineers in identifying potential impacts to natural resources in our resource area as a result of the proposed project. Please contact the Conservation District office with any questions at: (970) 724-3768.* **Response #803-11:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #803-10*** *(ID 4983)**:*** *Currently Denver Water diverts 60% of the Fraser River. If the Moffat Firming Project and the Windy Gap Firming Project are both approved, only 26% of the Upper Colorado River's native flows will be left. The Fraser River was already designated by American Rivers in 2005 as the 3rd most endangered river in the United States, due to the extensive quantity of water currently being diverted to the Front Range. Dewatering the Colorado River headwaters, of which the Fraser River is a big part,*

Comment Information	Comment	Comments and Responses
	Attachments: Middle Park Conservation District PO Box 265 106 S 2nd ST Kremmling, CO 80459 Phone: 970-724-3456 Fax: 970-724-0807 March 16, 2010 Mr. Scott Franklin, Moffat EIS Project Manager US Army Corps of Engineers - Omaha District Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128 Re: Moffat Collection System Project – Comments on Draft EIS Dear Mr. Franklin: Please accept the enclosed comments on the proposed Moffat Collection System Project Draft EIS from Middle Park Conservation District (MPCD). MPCD is one of Colorado's 76 conservation districts established under the Soil Conservation Act of 1937 to address conservation and stewardship of Colorado's natural resources. MPCD is responsible for on-the-ground conservation projects including: small acreage management, protection of rangeland and wildlife habitat, improving water delivery systems, forest health, improving water quality, reducing soil erosion, managing noxious weeds, and renewable energy and energy conservation projects. The District covers all of Grand and Summit Counties, which is the same resource area that will be directly impacted by implementation of the Moffat Collection System Project. The MPCD hopes that the following comments will help the Army Corps of Engineers in identifying potential impacts to natural resources in our resource area as a result of the proposed project. Please contact the Conservation District office with any questions at: (970) 724-3768. Respectfully Submitted, Middle Park Conservation District	*without properly mitigating the impacts to fish habitat and water quality will harm the entire waterway system throughout Grand County.* **Response #803-10:** The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. Information gained from www.americanrivers.org indicates that American Rivers reviews nominations for the "America's Most Endangered Rivers" report from river groups and concerned citizens across the country. Per the website, the report is not a list of the nation's "worst" or most polluted rivers, but rather it highlights rivers facing management decisions.

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	Middle Park Conservation District Comments on Moffat Collection System Draft EIS Currently Denver Water diverts 60% of the Fraser River. If the Moffat Firming Project and the Windy Gap Firming Project are both approved, only 26% of the Upper Colorado River's native flows will be left. The Fraser River was already designated by American Rivers in 2005 as the 3rd most endangered river in the United States, due to the extensive quantity of water currently being diverted to the Front Range. Dewatering the Colorado River headwaters, of which the Fraser River is a big part, without properly mitigating the impacts to fish habitat and water quality will harm the entire waterway system throughout Grand County. The Clean Water Act requires that Denver Water avoid, minimize and mitigate all identified impacts. We urge the following issues be better addressed in the final environmental impact statement: 1. To avoid permanent damage to the Fraser River, Denver Water should guarantee adequate, year round baseline stream flows in the Fraser, Colorado, Williams Fork and Blue rivers and establish regular flushing and channel maintenance flows necessary for maintaining the rivers' ecosystems. Enough water should be maintained in all the rivers to lower water temperatures needed for fish habitat. 2. The Preferred Alternative (1A) holds that the project will only be taking water at peak runoff months (May-July). It is still important to maintain periodic flushing flows that are essential for flushing sediment deposits, creating spawning habitat for fish and suppressing aquatic invasive species such as Didymo. 3. Denver Water must be required to maintain baseline flows that will sustain all rivers at temperatures equal to or surpassing state standards. 4. A further dewatered Fraser River will be pumped through Grand Lake, carrying a significantly higher concentration of run-off nutrients, increasing algal blooms and diminishing water clarity. 5. Mitigation efforts should focus on maintaining water quality and aquatic habitat, including measured flows, water temperatures, sediment deposition and transport, fluvial deposits, spawning habitat and aquatic invasives. 6. It is suggested that adaptive management strategies be incorporated in future management and maintenance of mitigation. 7. It is essential that local input, especially Grand and Summit Counties, be included in planning and implementing future management and maintenance of mitigation. 8. It is suggested that a mitigation requirement be included in the Corps' issuance of a 404 Permit utilize in-lieu fee program whereby Denver Water slightly increases the price of water delivery to its customers. The extra cost would be dedicated to a mitigation fund, and used for mitigation projects and water conservation efforts on both the East and West Slope. As a stipulation in the permit, this fee would constitute a cost of doing business for Denver Water. The Preferred Alternative, which specified enlarging Gross Reservoir, allows for mitigation. Middle Park Conservation District recommends and requests the Preferred Alternative ONLY if comprehensive points of impact and mitigation are diligently incorporated in the Permit.	Since it is appears that American Rivers' criteria for evaluation of river condition is subjective, the comment is simply noted. ***Comment #803-1*** *(ID 4984)**:*** *The Clean Water Act requires that Denver Water avoid, minimize and mitigate all identified impacts. We urge the following issues be better addressed in the final environmental impact statement: 1. To avoid permanent damage to the Fraser River, Denver Water should guarantee adequate, year round baseline stream flows in the Fraser, Colorado, Williams Fork and Blue rivers and establish regular flushing and channel maintenance flows necessary for maintaining the rivers' ecosystems. Enough water should be maintained in all the rivers to lower water temperatures needed for fish habitat.* **Response #803-1:** The proposed Moffat Project would not divert additional water in dry years. As described in FEIS Section 5.1, the majority of additional water would be diverted during the months of May, June, and July during run-off – not during low flow periods. Denver Water would not increase its diversions during the fall and winter months and existing bypass flow requirements would not change. Denver Water has committed to provide flushing flows in the Fraser River, St. Louis Creek, Vasquez Creek and Ranch Creek. Denver Water has also committed to forgo diversions when stream temperatures associated with low flow conditions are elevated. Refer to FEIS Appendix M for a description of the conceptual mitigation measures. The Corps is considering imposing such permit conditions to mitigate effects in the aquatic environment, if a permit is issued. In addition, to complement the mitigation measures, Denver Water is committed to the LBD Cooperative Effort to enhance the existing

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		environment and stream flow conditions (FEIS Section 4.3.1). For example, Denver Water will work with the Management Committee of the LBD Cooperative Effort to coordinate operations of its diversion structures in an effort to provide flushing flows, enhance peak spring flows and/or augment low flows. Specific enhancements that could address low flow and flushing flows include: • 1,000 AF annually of bypass water from the Fraser Collection System for environmental purposes. • Up to 1,000 AF annually of releases from Williams Fork Reservoir and 2,500 AF of carry over storage in Williams Fork Reservoir for environmental purposes. • Denver Water agrees not to reduce USFS bypass flows during a drought unless Denver Water has banned all residential lawn watering in its service area (Denver Water has never banned residential lawn watering). FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. ***Comment #803-4*** *(ID 4985)**:*** *The Preferred Alternative (1A) holds that the project will only be taking water at peak runoff months (May-July). It is still important to maintain periodic flushing flows that are essential for flushing sediment deposits, creating spawning habitat for fish and suppressing aquatic invasive species such as Didymo.*

Comment Information	Comment	Comments and Responses
		Response #803-4: Please see the response to Comment ID 4984. Spawning habitat and habitat for other life stages of fish were evaluated in the DEIS and FEIS. There are no indications that spawning habitat would be destroyed. Mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7. Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefer cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11. ***Comment #803-5*** *(ID 4986)**:*** *Denver Water must be required to maintain baseline flows that will sustain all rivers at temperatures equal to or surpassing state standards.* **Response #803-5:** Please see the response to Comment ID 4984. ***Comment #803-6*** *(ID 4987)**:*** *A further dewatered Fraser River will be pumped through Grand Lake, carrying a significantly higher concentration of run-off nutrients, increasing algal blooms and diminishing water clarity.*

Comment Information	Comment	Comments and Responses
		Response #803-6: Additional water quality analysis was performed for the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #803-7*** *(ID 4988)**:*** *Mitigation efforts should focus on maintaining water quality and aquatic habitat, including measured flows, water temperatures, sediment deposition and transport, fluvial deposits, spawning habitat and aquatic invasives.* **Response #803-7:** Please see the response to Comment ID 4984. The DEIS contained a discussion of invasive species. FEIS Sections 3.11, 4.6.11, and 5.11 contain revised, expanded discussions of these species in the Project area. Additionally, the proposed Project would not introduce aquatic nuisance species to any water body, nor increase the possible transport of aquatic nuisance species from one water body to another. All the diversion points, which would be used by the proposed Project to transfer water, already divert water between waterways. ***Comment #803-8*** *(ID 4989)**:*** *It is suggested that adaptive management strategies be incorporated in future management and maintenance of mitigation.* **Response #803-8:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required.

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		Comment #803-2 *(ID 4990)**:*** *It is essential that local input, especially Grand and Summit Counties, be included in planning and implementing future management and maintenance of mitigation.* **Response #803-2:** The Corps notes the comment. Additionally, Denver Water has been involved in several public meetings where comments were received on mitigation. ***Comment #803-9*** *(ID 4991)**:*** *It is suggested that a mitigation requirement be included in the Corps' issuance of a 404 Permit utilize in In-lieu Fee program whereby Denver Water slightly increases the price of water delivery to its customers. The extra cost would be dedicated to a mitigation fund, and used for mitigation projects and water conservation efforts on both the East and West Slope. As a stipulation in the permit, this fee would constitute a cost of doing business for Denver Water.* **Response #803-9:** As shown in FEIS Table 1-1, the 379,000 AF of demand in 2032 already reflects 29,000 AF of water savings from conservation measures between 1980 and 2000, and an additional 27,700 AF of savings from natural replacement (customers replacing items with more water efficient devices). As Denver Water looks to the future and how anticipated demand will be met, Denver Water has a goal of another 29,000 AF of conservation, of which 16,000 AF will be achieved by 2032. The additional 68,000 AF of demand reduction (natural replacement and additional conservation) was considered when calculating the amount of additional supply Denver Water would need to meet future demand. The Corps reviewed Denver Water's estimates of savings from natural replacement as described in

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		FEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections, pages 9-12) and research from the American Water Works Association was incorporated into the calculations of natural replacement savings. Starting in 2007, Denver Water accelerated its future conservation and natural replacement goals and developed a conservation program to reduce customers' water use by 22% by 2016. To date, Denver Water customers are using 20% less water – and customers are on pace to meet this goal. It is anticipated that Denver Water will continue its conservation program after the 2016 goal is met, however no specific percentage after that date has yet been established. Denver Water prefers to establish goals within a shorter timeframe than 40 years to accommodate changes in water use, landscaping trends, technological innovation and population growth. Denver Water has a conservation-oriented rate structure that includes a positive slope in the average price curve for all of its customers except master meter distributors. Denver Water does not have the legal authority to prescribe a rate structure to its master meter distributors, but it should be noted that similar drops in water use have been observed in master meter districts, regardless of the rate structure they use. Denver Water has a holistic suite of residential indoor/outdoor and industrial, commercial, and institutional conservation incentives. Denver Water does not currently have a landscape retrofit rebate program, but does provide incentive contracts to large irrigators to retrofit their landscape. Denver Water's current operating budget is $251 million and it's spending on conservation programs in most years exceeds $8 million, meaning it currently spends more than 3% of its operating budget on this program. Denver Water operates almost 3,000 miles of pipes in the treated water system and has programs to monitor and maintain

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		the distribution piping, including leak detection, corrosion monitoring, valve testing, water quality testing, pressure monitoring and fire flow testing. Denver Water's leak detection program is a crucial component of conservation and system maintenance. Year-round leak programs have been in place since 1981. The current leak detection program includes system loggers and mobile sonic detection devices, which are used to survey the system and to pinpoint leaks. Denver Water has a team dedicated to leak detection tasks, with the goal of covering all pipes every 5 years. All leaks detected are repaired. Denver Water's distribution system leak and break rate is less than half the national average. Three programs for pipe renewal have been operating since at least 1960; the main replacement program, the pipe rehabilitation (cement mortar lining) program, and the system improvements program. Collectively, these programs are geared to reducing leak losses, improving fire flow and water quality, minimizing interruptions, and maintaining high service standards. In 2009, the Denver Water Board approved major increases on the replacement and rehabilitation programs, and expenditures are expected to double over the next ten years. Denver Water encourages local and State governments to adopt ordinances and laws for efficient water use, however Denver Water does not have the legal authority to direct land-use decisions, including landscaping. But it does have the power to enact water rules and enforces water waste rules per its Operating Rules including mandatory restrictions on the number and times of day irrigation can occur. Denver Water and its suburban distributors are in compliance with Colorado statute 37-60-126.

Comment-Response Report (Jurisdictions/Municipalities Part C)

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		Comment #803-3 *(ID 4992)**:*** *The Preferred Alternative, which specified enlarging Gross Reservoir, allows for mitigation. Middle Park Conservation District recommends and requests the Preferred Alternative ONLY if comprehensive points of impact and mitigation are diligently incorporated in the Permit.* **Response #803-3:** The Corps notes the comment.

Comment-Response Report (Jurisdictions/Municipalities Part C)

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Comment #830 Mike Ritschard, Secretary Middle Park Farm Bureau	From: Mike Ritschard [mailto:[redacted] Sent: Wednesday, March 17, 2010 1:12 PM To: MOFFAT.EIS@usace.army.mil Subject: Moffat Collection system Mr Scott Franklin, I am sending this letter of opposition to the Moffat Collection System on behalf of the Middle Park Farm Bureau. Middle Park Farm Bureau represents 35 to 40 members in Grand Co Colorado. Taking additional water from the headwaters of the Colorado River will only emphasis the stress that is on the river now. The river needs high water to flush the system. As river volume is decreased, so is the underground water level which could have a negative effect on wetlands and the riparian areas next to the river. Thank-you for your time and consideration on this matter. Sincerely, Mike Ritschard Secretary Middle Park Farm Bureau	***Comment #830-1*** *(ID 3442)**:*** *I am sending this letter of opposition to the Moffat Collection System on behalf of the Middle Park Farm Bureau. Middle Park Farm Bureau represents 35 to 40 members in Grand Co Colorado. Taking additional water from the headwaters of the Colorado River will only emphasis the stress that is on the river now. The river needs high water to flush the system. As river volume is decreased, so is the underground water level which could have a negative effect on wetlands and the riparian areas next to the river. Thank-you for your time and consideration on this matter.* **Response #830-1:** A flushing flow analysis was performed and documented in the channel geomorphology subsection of DEIS Section 4.1. Results of the channel morphology analysis show that with or without the proposed Project sediment transport capacity greatly exceeds supply in all locations evaluated, however the proposed Project would result in decreased sediment transport capacity. Information provided in the DEIS indicates there would be, at most, very small changes in the water table (groundwater level) directly beneath and adjacent to potentially affected stream segments. The amount of the water table changes would be similar to but less than the changes in stream levels caused by the Moffat Project. The largest changes in stream levels attributable to the Project would be very small, and would be in the upper parts of the Fraser River and the upper part of the Williams Fork watersheds directly downstream of the existing diversion structures. Further downstream along the Colorado River, changes in stream levels due to the Project would be even smaller.

Comment-Response Report (Jurisdictions/Municipalities Part C)

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Comment #836 -- -- Colorado River Water Conservation District and -- -- Grand County and -- -- Middle Park Water Conservancy District and -- -- Northwest Colorado Council of Governments and -- -- Summit County and -- -- Trout Unlimited and -- -- Western Resource Advocates and	From: mary keyes [mailto:[redacted] Sent: Wednesday, March 17, 2010 8:15 PM To: Franklin, J Scott NWO Cc: Lurline Underbrink Curran; Cindy Derby; Barbara Green Subject: Moffat DEIS Scott - Attached is the Joint Rebuttal Report regarding the Moffat Collection System Project DEIS, submitted by: Grand County, Summit County, NWCCOG, Middle Park Water Conservancy District, Trout Unlimited Colorado River Water Conservation District, and Western Resource Advocates. Please contact me if you have problems with this transmittal - Thank you - Mary Mary Keyes SullivanGreenSeavy LLC [redacted] direct: 303-763-7362 - JointRebuttalReport.pdf	***Comment #836-116*** *(ID 4760)**:*** *Attached is the Joint Rebuttal Report regarding the Moffat Collection System Project DEIS, submitted by: Grand County, Summit County, NWCCOG, Middle Park Water Conservancy District, Trout Unlimited Colorado River Water Conservation District, and Western Resource Advocates. Please contact me if you have problems with this transmittal - Thank you - ATTACHMENT JOINT REBUTTAL REPORT March 17, 2010 TABLE OF CONTENTS I. INTRODUCTION & SUMMARY A. CURRENTLY COMPROMISED CONDITIONS B. MOFFAT PROJECT IMPACTS. C MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT II.. DEIS FINDINGS BY RESOURCE CATEGORY A. SURFACE WATER HYDROLOGY B. WATER QUALITY C. STREAM MORPHOLOGY AND FUNCTION D. AQUATIC LIFE E. RECREATION F. LAND USE G. VISUAL RESOURCES H. CULTURAL RESOURCES III. CUMULATIVE IMPACTS A. AQUATIC RESOURCES B. RECREATION, LAND USE, VISUAL RESOURCES AND CULTURAL RESOURCES C. THE MOUNTAIN PINE BEETLE INFESTATION D. CLIMATE CHANGE AND GLOBAL WARMING IV. MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT A. ADAPTIVE MANAGEMENT AND MONITORING PLAN B. MITIGATION AND CONDITIONS FOR PROTECTION OF AQUATIC ENVIRONMENT C. MITIGATION AND CONDITIONS FOR PROTECTION OF RECREATION RESOURCES D. AGRICULTURAL RESOURCES E. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS V. SECTION 404 PERMIT APPLICATION: COMPLIANCE WITH GUIDELINES A. GUIDELINE – Section 230.10(a) B. GUIDELINE – Section 230.10 (b)(1) C. GUIDELINE – SECTION 230.10(c) D. GUIDELINE – Section 230.10 (d) SUPPLEMENTAL TABLES ACRONYMS REFERENCES*

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Mary Keyes SullivanGreenSeavy LLC	Attachments: **MOFFAT COLLECTION SYSTEM PROJECT** **Draft Environmental Impact Statement** JOINT REBUTTAL REPORT March 17, 2010 Submitted by: Grand County Summit County Northwest Colorado Council of Governments Middle Park Water Conservancy District Trout Unlimited Colorado River Water Conservation District Western Resource Advocates	**Response #836-116:** The Corps notes the comment ***Comment #836-115*** *(ID 4759)**:*** *INTRODUCTION & SUMMARY This Report comprises a response to the DEIS for the Moffat Tunnel Collection System Project (Moffat Project). The Project would triple the size of Gross Reservoir, enabling Denver Water to significantly increase its current diversions out the Fraser and the Williams Fork river basins for use on the Front Range. The signatories of this Report comprise local governments, conservation organizations and private land owners who are extremely concerned about the impacts the Moffat Project will have on valuable West Slope streams that are already significantly dewatered by transmountain diversion projects and are showing signs of degradation. Representatives of some of the parties that have submitted this Joint Rebuttal Report are engaged in an extensive negotiation process with Denver Water. Those parties reserve the right to modify or withdraw any of their comments if a comprehensive settlement is reached that resolves the issues of concern stated in the Joint Rebuttal Report and in the respective individual comment letters of the entities. Withdrawal or modification by a party only affects that party's position regarding the Joint Statement. It does not modify the position or ability of any other signatory party to rely upon or use said document.* **Response #836-115:** The Corps notes the comment. ***Comment #836-114*** *(ID 4758)**:*** *Denver Water's existing Moffat Tunnel diversions already take a large percentage of the native flows of streams within the Fraser and Williams Fork river basins across the Continental Divide and significantly deplete the Upper Colorado River. Portions of some streams are completely dried up. The proposed Moffat Project will increase stream*

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	I. INTRODUCTION & SUMMARY This Report comprises a response to the DEIS for the Moffat Tunnel Collection System Project (Moffat Project). The Project would triple the size of Gross Reservoir, enabling Denver Water to significantly increase its current diversions out the Fraser and the Williams Fork River basins for use on the Front Range. The signatories of this Report comprise local governments, conservation organizations and private land owners who are extremely concerned about the impacts the Moffat Project will have on valuable West Slope streams that are already significantly dewatered by transmountain diversion projects and are showing signs of degradation. Representatives of some of the parties that have submitted this Joint Rebuttal Report are engaged in an extensive negotiation process with Denver Water. Those parties reserve the right to modify or withdraw any of their comments if a comprehensive settlement is reached that resolves the issues of concern stated in the Joint Rebuttal Report and in the respective individual comment letters of the entities. Withdrawal or modification by a party only affects that party's position regarding the Joint Statement. It does not modify the position or ability of any other signatory party to rely upon or use said document. **Denver Water's existing Moffat Tunnel diversions already take a large percentage of the** native flows of streams within the Fraser and Williams Fork River basins across the Continental Divide and significantly deplete the Upper Colorado River. Portions of some streams are completely dried up. The proposed Moffat Project will increase stream depletions and the time during which stream segments will remain dry. One illustration of this situation is depicted in the graph below that shows average daily streamflows of the Fraser River near Winter Park under four conditions: ▪ actual native flows prior to the Moffat Tunnel construction and diversions (1911 to 1935); ▪ actual flows with original Moffat Tunnel diversions (1936 to 2006); ▪ **modeled DEIS flows reflecting "current" conditions (DEIS, Table H**-1.10), and; ▪ modeled DEIS flows under Proposed Alternative 1A (i.e. the Moffat Project). (DEIS, Table H-1.10). 3	***Comment #836-113*** *(ID 4757)**:*** *Denver Water also intends to increase diversions from the Blue River through the Roberts Tunnel even with the Moffat Project. Denver Water already diverts a significant portion of the native Blue River basin flows through the Roberts Tunnel. Planned increased diversions will have significant environmental and recreational impacts on the Blue and Colorado Rivers. In spite of ongoing diversions, the Fraser, Williams Fork and Blue river basins and the Upper Colorado River remain popular fishing and boating destinations. Fishing and boating are mainstays of the summer tourist economy. Tourism is the primary economic driver in both Grand and Summit counties. Unlike other more urban environments, every tourist activity in these counties relies directly on healthy streamflow volumes. The Colorado River, downstream of the Windy Gap Reservoir and the Blue River are designated State Gold Medal Trout fisheries. In addition, the Blue and Colorado Rivers are candidates for Wild and Scenic Rivers Act designation due to their outstanding fishing and recreational values.* **Response #836-113:** The Corps coordinated with the BLM regarding the Wild and Scenic River designation process throughout the NEPA process. Sections of the Blue and Colorado rivers within the Project area considered eligible for Wild and Scenic River designation are described in DEIS Sections 3.13.5 and 3.13.5.3. An eligibility determination for potential designation under the Wild and Scenic Rivers Act does not preclude a project from being permitted. The Corps' Section 404 regulations require the Corps to consider degradation to the waters of the U.S. and minimization of potential adverse effects to the aquatic ecosystem. Additionally, the Corps' public interest review balances both protection and utilization of natural resources and includes consideration of conservation, historic and cultural values, fish and wildlife values, aesthetics, etc.

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	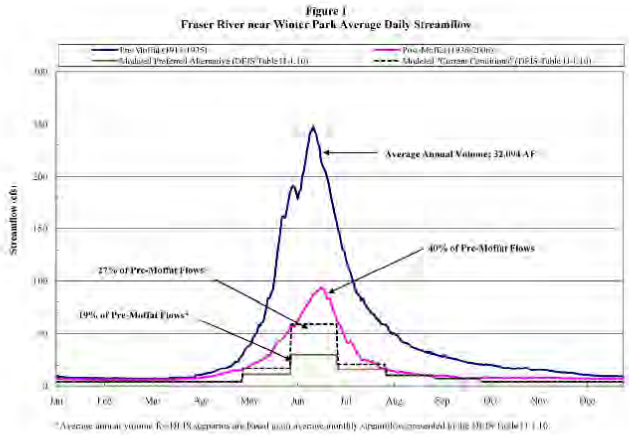 BBA Denver Water also intends to increase diversions from the Blue River through the Roberts Tunnel even with the Moffat Project. Denver Water already diverts a significant portion of the native Blue River basin flows through the Roberts Tunnel. Planned increased diversions will have significant environmental and recreational impacts on the Blue and Colorado Rivers. In spite of ongoing diversions, the Fraser, Williams Fork and Blue river basins and the Upper Colorado River remain popular fishing and boating destinations. Fishing and boating are mainstays of the summer tourist economy. Tourism is the primary economic driver in both Grand and Summit counties. Unlike other more urban environments, every tourist activity in these counties relies directly on healthy streamflow volumes. The Colorado River, downstream of the Windy Gap Reservoir and the Blue River are designated State Gold Medal Trout fisheries. In addition, the Blue and Colorado Rivers are candidates for Wild and Scenic Rivers Act designation due to their outstanding fishing and recreational values. A. CURRENTLY COMPROMISED CONDITIONS This summary section highlights circumstances where the current condition of the environmental resources in Grand and Summit County are compromised, and further degradation may jeopardize the balance of ecosystem in a non-linear way. More complete descriptions of these conditions are presented in this Report. 4	Thus, the resources recognized by the BLM as being eligible under the Wild and Scenic Rivers eligibility study are similarly considered in the Corps' impact analysis and permitting decision. ***Comment #836-76*** *(ID 4756)**:*** *CURRENTLY COMPROMISED CONDITIONS This summary section highlights circumstances where the current condition of the environmental resources in Grand and Summit County are compromised, and further degradation may jeopardize the balance of ecosystem in a non-linear way. More complete descriptions of these conditions are presented in this Report.* **Response #836-76:** The Corps notes the comment. Responses to comments pertaining to currently compromised conditions are provided throughout your letter in the appropriate locations. ***Comment #836-8*** *(ID 4755)**:*** *Paraphrasing EPA guidelines, the DEIS states: "knowing whether a resource is healthy, declining, near collapse, or not functioning is necessary for determining the significance of any added impacts due to the Moffat Project" (DEIS, page 5-3). Yet, the DEIS does not evaluate or make a determination regarding the current health of these resources, electing instead to assume that the resource is currently healthy, not in decline or near collapse and functioning. This assumption is contradicted by available data and studies.* **Response #836-8:** The Corps is not aware of a scientific threshold or "tipping point" at which negative impacts occur to resources like water quality or aquatic species nor is the Corps aware of any model or technique available that conducts "threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For

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	Paraphrasing EPA guidelines, the DEIS states: **"knowing whether a resource is healthy,** declining, near collapse, or not functioning is necessary for determining the significance of **any added impacts due to the Moffat Project" (***DEIS, page 5-3)***.** Yet, the DEIS does not evaluate or make a determination regarding the current health of these resources, electing instead to assume that the resource is currently healthy, not in decline or near collapse and functioning. This assumption is contradicted by available data and studies. ▪ **Water Quality**. The Fraser, Williams Fork and Colorado rivers and tributaries and Grand Lake currently experience water quality problems including exceedences to State stream temperature standards. Due to high stream temperatures, which occur when flows are low in the summer and early fall, portions of the Fraser River, Ranch Creek and the Colorado River will be placed on the Clean Water Act Section 303(d) list of impaired waters later in 2010. These e**levated stream temperatures already impair the streams'** aquatic life. *(See Section II.B.1)* ▪ **Macroinvertebrates**. Stone fly populations *Pteronarcys californica*) have significantly declined downstream of Windy Gap Reservoir and in some areas, have been virtually eliminated; increased diversions could exacerbate this downward trend. Whether similar declines in stone fly populations have occurred in the Fraser and Williams Fork river basins is unknown. The loss of these macroinvertebrate populations is significant not only because they are an important aquatic species, but also because they are an important food source for recreational trout fisheries.*(See Section* II.D.) ▪ **Native fish**. The populations of the native mottled sculpin (*Cottus bairdi*) have significantly declined; the relative abundance of the mottled sculpin ranges between zero and five percent at sampling sites on stream reaches downstream of the main stem impoundments at Granby, Willow Creek, Windy Gap and Williams Fork reservoirs. Increased diversions may exacerbate this downward trend. Whether declines in sculpin populations have occurred in the Fraser River basin is unknown. However, there are indications that sculpin are absent from the Fraser River upstream from the confluence with Vasquez Creek. *(See Section II.D)* ▪ **Trout biomass**. The Colorado Division of Wildlife has identified significant declines in **trout biomass. "In 1981, the trout population in the Kemp**-Breeze State Wildlife area near Parshall included 89 trout per acre longer than 14 inches. In 2007, the estimate for the same reach of river was 21 trout per acre longer than 14 inches. This data supports the popular notion among the angling public that the quality of fishing on this reach of river **has steadily declined since the construction of the Windy Gap project."** *(See Section II.D)* ▪ **Invasive species**. Proliferation of harmful aquatic species such as didymo and whirling disease-producing tubifex worms, are documented problems in many of the affected streams. *(See Section II.D.)* ▪ **Sediment**. Empirical data show excess sediment in Ranch Creek, the Fraser River and the Colorado River. Excess sediment can be detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm 5	example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. The direct impact discussion for aquatic resources (DEIS Section 4.9) identifies minor impacts are anticipated to occur as a result of the Project, particularly since Denver Water would not divert additional West Slope water in dry years. Additionally, diversions during winter months would occur in 2 years during the 45-year study period. In winter months when additional diversions take place, bypass flows would usually be equal to or higher than the average winter flows and always higher than the minimum flow. ***Comment #836-69*** *(ID 4754)**:*** *Water Quality. The Fraser, Williams Fork and Colorado rivers and tributaries and Grand Lake currently experience water quality problems including exceedences to State stream temperature standards. Due to high stream temperatures, which occur when flows are low in the summer and early fall, portions of the Fraser River, Ranch Creek and the Colorado River will be placed on the Clean Water Act Section 303(d) list of impaired waters later in 2010. These elevated stream temperatures already impair the streams' aquatic life. (See Section II.B.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-69:** A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was

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	host for whirling disease. In the absence of high flushing flows, species with life stages that are sensitive to sedimentation, can suffer high mortality rates. *(See Section II.C.1)* B. MOFFAT PROJECT IMPACTS 1. **Moffat Project Impacts That Exacerbate Currently Compromised Conditions** The Proposed Alternative 1A (The Moffat Project) will exacerbate currently compromised conditions by increasing water diversions in the summer months. The environmental impacts of this proposed action were under-stated, dismissed or analyzed in a way that is contrary to empirical evidence and scholarly research. ▪ **Loss of sediment transport capacity**. Additional diversions cause loss of peak flows that further reduce the ability of the streams to move sediment, causing or contributing to degradation of habitat for macroinvertebrates, native fish and trout and the proliferation of invasive species. ▪ **Prolonged low-flow periods**. Additional diversions in the summer and early fall months can prolong the periods of low flows and high stream temperatures, causing or contributing to the additional impairment of aquatic resources. ▪ **More frequent dry year conditions**. Additional diversions in average years following dry years can create human-induced drought-like conditions with corresponding impacts to aquatic resources. ▪ **Extended period of time during which tributaries will be dried up**. Moffat Project diversions will extend the period during which several tributaries of the Fraser River will be completely dried up. ▪ **Potential for dramatic, threshold changes to aquatic system**. Given the magnitude of native flows already taken out of the system, the incremental stream depletions caused by the Moffat Project alone, or in combination with other reasonably foreseeable projects, has the potential to cause or contribute to dramatic, threshold (non-**linear) changes to the aquatic system, including the loss of a stream's ability to** support macroinvertebrates and fisheries. 2. **Moffat Project Impacts by Resource Category**. For each resource category, this section highlights circumstances where DEIS conclusions are in error and unreported environmental consequences are likely to occur because of the Moffat Project. It is a summation of information presented in Section II of this Report. In general, the DEIS understates the magnitude of depletions caused by the Project, misrepresents their timing, uses flawed methodology and arbitrary screening criteria that preclude evaluation of significant impacts, and fails to ask or evaluate critical questions, such as the potential for dramatic, threshold changes to the affected aquatic system. 6	performed for the FEIS (see Sections 4.6.2 and 5.2). The DEIS contained a discussion of water temperatures in these streams and the effects on aquatic biological resources. The FEIS contains a more detailed discussion in Sections 4.6.11 and 5.11. The FEIS reflects the 2012 Section 303(d) and Monitoring and Evaluation (M&E) List as listed in CDPHE Regulation 93. ***Comment #836-7*** *(ID 4753)**:*** *Macroinvertebrates. Stone fly populations (Pteronarcys californica) have significantly declined downstream of Windy Gap Reservoir and in some areas, have been virtually eliminated; increased diversions could exacerbate this downward trend. Whether similar declines in stone fly populations have occurred in the Fraser and Williams Fork river basins is unknown. The loss of these macroinvertebrate populations is significant not only because they are an important aquatic species, but also because they are an important food source for recreational trout fisheries.(See Section II.D.) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-7:** The CPW report (Nehring 2010) discussing the decline in Pteronarcys was released after the DEIS was completed. The Corps is aware of the Nehring report and is has been included in FEIS Section 5.11. ***Comment #836-108*** *(ID 4752)**:*** *Native fish. The populations of the native mottled sculpin (Cottus bairdi) have significantly declined; the relative abundance of the mottled sculpin ranges between 0 and 5% at sampling sites on stream reaches downstream of the main stem impoundments at Granby, Willow Creek, Windy Gap*

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	In instances when the DEIS does identify potential Project impacts, they are dismissed as **"negligible," "minor," or "moderate"** without valid scientific substantiation. As a result, the DEIS fails to propose adequate measures to avoid, minimize or mitigate impacts that will cause or contribute to the significant degradation of affected streams and aquatic habitat. **SURFACE WATER HYDROLOGY – STREAMFLOW DEPLETIONS** (See Section II.A.1) **DEIS Flawed Conclusion**: The magnitude of streamflow depletions due to the Moffat Project are understated and underreported. The DEIS fails to recognize that streamflow is the foundation upon which all other environmental consequences in Grand County and Summit County are measured. **DEIS Conclusion Errors**: - **Use of the 2016 "Full Use System" as the baseline masks true streamflow impacts.** - Discrepancies between modeled conditions and actual data are under-reported, understating future Project depletions and associated Project impacts. - Impacts of significant streamflow reductions between 2006 and 2016 due to Denver Water depletions are excluded from the analysis. - **2016 "baseline" assumptions inflate demand forecasts.** - The study period excludes the full range of existing hydrological conditions. - Depletions to the Colorado River below Kremmling were excluded. - Analyzing streamflows in monthly averages understate environmental impacts. **Environmental Consequences**: - Understated and inaccurate forecasts of streamflow depletions associated with the Project make subsequent impact analysis on water quality, stream morphology, aquatic life, recreation and land use wrong. (See Sections II.B through II.H) **SURFACE WATER HYDROLOGY – PEAK FLOWS** (See Section II.A.2) **DEIS Flawed Conclusion**: **The "overall pattern of the flow regime" in the Fraser River** will be the same. **DEIS Conclusion Errors**: - The Moffat Project will not significantly reduce remaining peak flows. - Peak flow conditions are neither disclosed nor evaluated between 2006 and 2016. - Changes in magnitude of peak flows attributable to the Project are not properly evaluated; changes in timing and frequency of peak flows are not evaluated at all. **Environmental Consequences**: - Changes to the natural flow regime can adversely impact aquatic life. - Failure to properly evaluate changes in peak flows makes subsequent analysis on water quality, stream morphology, aquatic life, recreation and land use incomplete and inadequate. (See Sections II.B through II.H) 7	*and Williams Fork reservoirs. Increased diversions may exacerbate this downward trend. Whether declines in sculpin populations have occurred in the Fraser River basin is unknown. However, there are indications that sculpin are absent from the Fraser River upstream from the confluence with Vasquez Creek. (See Section II.D) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-108:** An expanded discussion of the distribution of sculpins in the Project area is included in FEIS Section 3.11. ***Comment #836-107*** *(ID 4751)**:*** *Trout biomass. The Colorado Division of Wildlife has identified significant declines in trout biomass. "In 1981, the trout population in the Kemp-Breeze State Wildlife area near Parshall included 89 trout per acre longer than 14 inches. In 2007, the estimate for the same reach of river was 21 trout per acre longer than 14 inches. This data supports the popular notion among the angling public that the quality of fishing on this reach of river has steadily declined since the construction of the Windy Gap project." [SEE SECTION II.D IN ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-107:** The DEIS did not evaluate the Colorado River in depth because the flow changes would be much less than 10% on an annual basis and impacts to the resources listed in this comment were unlikely. However, the FEIS has been modified to include the Colorado River as a focus reach with expanded discussion of existing conditions and impacts evaluation in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #836-106*** *(ID 4750)**:*** *Invasive species. Proliferation of harmful aquatic species such as didymo and whirling disease-producing tubifex worms, are documented problems*

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	SURFACE WATER HYDROLOGY - DRY YEARS (See Section II.A.3) **DEIS Conclusion:** The Moffat Project will not increase the frequency and duration of dry year conditions. **DEIS Conclusion Errors:** - The Moffat Project will increase the frequency and duration of dry year conditions. - There is no evaluation of impacts associated with a permanent increase in the frequency and duration of dry year conditions and the possibility of back-to-back dry years. **Environmental Consequences:** - During dry years, stresses on water quality, aquatic life, stream morphology, wastewater providers, agricultural irrigators, and recreation users are particularly acute. These impacts are not addressed. (See Sections II.B through II.H) **SURFACE WATER HYDROLOGY – SMALL FLOW REDUCTIONS** (See Section II.A.4) **DEIS Conclusion.** Stream flow reductions in the Fraser River and small tributaries is small and, therefore, insignificant. **DEIS Conclusion Errors:** - Small stream flow reductions in small streams can have a significant impact on aquatic resources. - DEIS does not evaluate situations where streamflows will change more than 1 cubic-foot-per- second 20% of the time. - **Stated streamflow reductions of 20% and more are reported to be "insignificant."** **Environmental Consequences:** - Streamflow reductions of the magnitude stated above may significantly impact macroinvertebrate populations, fisheries, habitat connectivity and water quality. **WATER QUALITY – SIGNIFICANCE OF IMPACTS** (See Section II.B.1) **DEIS Conclusion:** There will be no significant water quality impacts from the Project in the Fraser, Williams Fork and Upper Colorado Rivers and tributaries. **DEIS Conclusion Errors:** - There are a substantial number of existing, known water quality problems including existing exceedences of State water quality standards which the Project is likely to exacerbate; many of these existing problems are not even identified. - Acknowledged exceedences of State stream temperature standards which reflect maximum levels beyond which stream temperature becomes lethal to fish and microinvertebrates have been marginalized or dismissed. 8	*in many of the affected streams. [SEE SECTION II.D IN ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-106:** Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefers cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11. Whirling disease is a State-wide epidemic being managed by the CPW and it does not appear to be associated with stream diversions. Whirling disease is discussed in Section 3.9.0 of the DEIS. Moffat Project diversions occur in high mountain systems (e.g., Upper Clear Creek, Vasquez Creek) that are generally free from whirling disease, so it is unlikely that the proposed Project would increase the spread of the disease. Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefers cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11.

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	- Inappropriately restrictive screening criteria limit the analysis to situations where water quality is already a problem and disregard situations where the Project may trigger a problem. - Impacts due to reduction of cooling groundwater recharge flows are ignored. - Fugitive dust impacts on water quality are ignored. - Water quality degradation between 2006 and 2016 is ignored. **Environmental Consequences:** - Aquatic life will be compromised more than reported; in fact, there may be lethal impacts to aquatic life. - Grand **Lake's water quality and clarity will be further degraded from higher nutrient** concentrations in the Fraser River attributable to the Moffat Project. **WATER QUALITY – WASTEWATER TREATMENT** (See Section II.B.2) **DEIS Conclusion:** The Project will have only negligible impacts to Grand County and Summit County wastewater treatment providers and their discharge permits. **DEIS Conclusion Errors:** - Screening criteria inappropriately exclude situations where the Project will likely trigger discharge permit violations. - The DEIS does not apply the testing criteria used by the CDPHE for discharge permits. - DEIS ignores the current challenges that Hot Sulphur Springs confronts and the specific permitting conditions imposed on it by the State. **Environmental Consequences:** - Complying with discharge permit conditions will become more expensive due to lower flows and increasing concentrations of copper, ammonia and dissolved oxygen. - State statutes require the wastewater treatment provider to bear all compliance costs. **STREAM MORPHOLOGY – SEDIMENTATION** (See Section II.C.1) **DEIS Conclusion:** For the modeled period of 2016 to 2030, sediment transport capacity will be orders of magnitude greater than available sediment supply for all but the smallest flows. Only minor amounts of localized sediment deposits are anticipated. Accordingly, **the Project's peak flow reduction will not adversely affect aquatic resources.** **DEIS Conclusion Errors:** • Conclusions contradict empirical data; four of the seven DEIS sediment transport **study sites are currently showing "potential signs of aggradation."** • Project impacts on peak flows and their relationship to sediment transport is ignored. • Information about the sediment supply equation used in the DEIS is missing. • The method to collect surface sediment samples is outdated and superficial. **Environmental Consequences:** : 9	Invasive species were discussed in the DEIS. An expanded, updated discussion is included in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #836-6*** *(ID 4749)**:*** *Sediment. Empirical data show excess sediment in Ranch Creek, the Fraser River and the Colorado River. Excess sediment can be detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm host for whirling disease. In the absence of high flushing flows, species with life stages that are sensitive to sedimentation, can suffer high mortality rates. (See Section II.C.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]* **Response #836-6:** Additional evaluations of sediment transport and accumulation including flows required to mobilize multiple particle sizes were conducted and the results are provided in FEIS Section 4.3. High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all of Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at

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	- Excess sediment can be extremely detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm host for whirling disease. In the absence of high flushing flows, species with life stages that are sensitive to sedimentation can suffer high mortality rates.. **AQUATIC LIFE** – (See Section II.D) **DEIS Conclusion:** The Project **will result in, at most, "negligible" to "minor" impacts on** aquatic life. **DEIS Conclusion Errors:** - Contrary to empirical information, the DEIS incorrectly assumes that the current condition of aquatic resources has not already been degraded. - In circumstances where a stream bed is dried up or where the Project will prolong dry-up conditions, thus completely depriving fish and microinvertebrates of water, the **DEIS concludes that impacts are "minor."** - Prolonged stream temperature exceedences above State standards are lethal to fish, not **"minor" impacts.** - Impacts to aquatic life that will be exposed to more dry-year conditions were not evaluated. - Impacts to macroinvertebrates and other fish species and on whirling disease were not evaluated. - Inaccurate surface water hydrology, water quality, stream morphology and sediment transport analyses leading to impact results that are unreliable or wrong. - Conclusions based on average monthly statistics mask potentially lethal impacts to microinvertebrates and fish that live or die depending on *daily* stream conditions. - Minimal increased concentrations in some metals can be lethal to aquatic life. - Conclusions that winter habitat is more limiting to fish population than depleted flows and that reducing peak flows is beneficial to fish habitat are contrary to current scientific understanding, including research cited in the DEIS. **Environmental Consequences:** - Increases in stream temperature and in streams dry-up are lethal to fish and microinvertebrates. - Extending periods of low flow may decrease water quality and sedimentation transport and increase invasive species. - Decreasing peak flows may impact channel morphology and sediment transport which support fisheries and macroinvertebrates. **RECREATION – FISHING** (See Section II.E.1) **DEIS Conclusion:** There are no fishing impacts in Grand or Summit Counties. **DEIS Conclusion Errors:** - Conclusion is unsupported. There is no discussion about the relationship between hydrology, water quality and water temperature to fishing. - There is no information about changes to fishing between 2006 and 2016. - Currently compromised fishing conditions due to water temperature is not discussed. 10	those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years; however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to FEIS Sections 4.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, IHA (a computer model for calculating characteristics of altered hydrologic regimes), was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. FEIS Section 5.11 evaluated the impacts of changes to sediment transport and flushing flows on aquatic resources in the Project area. ***Comment #836-96*** *(ID 4748)**:*** *MOFFAT PROJECT IMPACTS 1. Moffat Project Impacts That Exacerbate Currently Compromised Conditions The Proposed Alternative 1A (The Moffat Project) will exacerbate currently compromised conditions by increasing water diversions in the summer months. The environmental impacts of this*

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	- There is no information about changes to fishing in the Colorado River downstream of confluence with the Blue River. - Correlation between flows and healthy fisheries is inconsistent with scholarly information from other sources. **Environmental Consequences:** - Further deterioration of fisheries will decrease the quality of the fishing experience, reduce the number of anglers who represent an important segment of the summer recreation visitor market. - Loss of Gold Medal Water designation or Wild and Scenic River candidacy could a trigger an additional loss to the summer visitor market. This concern was not addressed. **RECREATION - BOATING** (See Section II.E.2) **DEIS Conclusion:** There is a beneficial relationship between proposed streamflow changes in days suitable for kayaking and rafting on the Colorado River, , and there is only negligible impacts to the number of days suitable for kayaking and rafting on the Blue River. **DEIS Conclusion Errors:** - Analyses completed as part of the Colorado Wild and Scenic Alternative Management Plan and the Windy Gap Firming Project DEIS concluded that there are adverse impacts, measured in reduced days suitable for kayaking and rafting. **Environmental Consequences:** - Fewer days suitable for the full range of boating opportunities on the Colorado River will adversely affect this summer visitor activity in western Grand County where the number of tourist-related options is limited. **LAND USE - AGRICULTURAL IMPACTS** (See Section II.F.1) **DEIS Conclusion:** The DEIS does not address agricultural impacts in Grand or Summit Counties. **DEIS Conclusion Errors:** - Low streamflows already cause irrigation ditch operations problems for ranchers who use the Fraser and Colorado Rivers during dry and average years. - Additional streamflow reductions will exacerbate this problem. - Impacts to irrigators are serious because Denver Water owns very senior water rights that could be exercised more frequently due to the Moffat Project. **Environmental Consequences:** - Irrigation ditch problems and failures lead to additional costs associated with repair and can result in poor crop results which impact agricultural revenues. 11	*proposed action were under-stated, dismissed or analyzed in a way that is contrary to empirical evidence and scholarly research. • Loss of sediment transport capacity. Additional diversions cause loss of peak flows that further reduce the ability of the streams to move sediment, causing or contributing to degradation of habitat for macroinvertebrates, native fish and trout and the proliferation of invasive species.* **Response #836-96:** Please see the response to Comment ID 4683. The descriptions of the affected environment for aquatic resources in FEIS Section 3.11 have been revised to more fully characterize existing conditions in the diverted tributaries. ***Comment #836-5*** *(ID 4747)**:*** *Prolonged low-flow periods. Additional diversions in the summer and early fall months can prolong the periods of low flows and high stream temperatures, causing or contributing to the additional impairment of aquatic resources.* **Response #836-5:** Please see the response to Comment ID 4707. The DEIS contained a discussion of water temperatures in these streams and the effects on aquatic biological resources. The FEIS now contains a more detailed discussion in Sections 4.6.11 and 5.11. ***Comment #836-112*** *(ID 4746)**:*** • *More frequent dry year conditions. Additional diversions in average years following dry years can create human-induced drought-like conditions with corresponding impacts to aquatic resources.*

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	LAND USE - RESORT DEVELOPMENTS (See Section II.F.2) **DEIS Conclusion:** The DEIS provides no discussion of land use in Grand County. **DEIS Conclusion Errors:** - There are a number of signature resort developments in Grand County that inextricably rely on the Fraser River, the Colorado River and their tributaries. **Environmental Consequences:** - Further reductions in streamflow, deterioration in water quality and increases in water temperature will hamper the fishing experience as well as the visual and auditory enjoyment of rivers and tributaries upon which these signature resorts rely. **VISUAL RESOURCES** (See Section II.G) **DEIS Conclusion:** There is an adverse impact on the Fraser River from a visual perspective. Impacts on the Williams Fork, Blue and Colorado rivers are minor, limited, **or "below perceptible change."** **DEIS Conclusion Errors:** - Conclusions are confined to remarks about streamflow; they exclude water clarity or related riparian environment. - Excludes consideration of impacts on Grand Lake. - Excludes consideration of cumulative impact to recognized Wild and Scenic Rivers **Act "outstandingly remarkable" scenic values in the** Colorado River downstream of confluence with the Blue. - Streamflow reductions between 2006 and 2016 were not evaluated. - Conclusions are based on one study of questionable comparability. **Environmental Consequences:** - Further reductions in the visual resources with high visitor visibility may decrease visitation to Grand County and Summit County. To both Counties, tourism is **a "basic sector" industry.** - **It may also affect Congress' ability to opt to designate portions of the Colorado River** under the Wild and Scenic Rivers Act due to its scenic value. **CULTURAL RESOURCES** (See Section II.H) **DEIS Conclusion:** The DEIS excludes all mention of cultural resources in Grand County. **DEIS Conclusion Errors:** - Grand County has a rich and diverse cultural history that is directly linked with the water resources of the Fraser, Williams Fort and Colorado Rivers. 12	• *Extended period of time during which tributaries will be dried up. Moffat Project diversions will extend the period during which several tributaries of the Fraser River will be completely dried up.* **Response #836-112:** Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources. Information was also added to FEIS Section 4.6.1 on the increased frequency and duration that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up. Changes in daily diversions and streamflows for a sequence of dry years followed by a wet year were also included in the FEIS. ***Comment #836-111*** *(ID 4745)**:*** *Potential for dramatic, threshold changes to aquatic system. Given the magnitude of native flows already taken out of the system, the incremental stream depletions caused by the Moffat Project alone, or in combination with other reasonably foreseeable projects, has the potential to cause or contribute to dramatic, threshold (non-linear) changes to the aquatic system, including the loss of a stream's ability to support macroinvertebrates and fisheries.* **Response #836-111:** The Corps is not aware of a scientific threshold or "tipping point" at which negative impacts occur to resources like water quality or aquatic species nor is the Corps aware of any model or technique available that conducts "threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of

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	Environmental Consequences: - **Further compromise to Grand County's water resources will adversely impact its** cultural resources. 3. Cumulative Impacts The DEIS fails to evaluate cumulative impacts of past, current and reasonably foreseeable future conditions in aquatic resources, recreation, land use, visual resources, cultural resources, the mountain pine beetle infestation, or climate change and global warming. By incorrectly incorporating the proposed Windy Gap Firming Project into the 2016 **"baseline" figures, all incremental impacts associated with this highly significant project have** been dismissed. Impacts of historical and existing diversions on aquatic life are ignored. Impacts of reasonably foreseeable events – including increased future diversions in the Colorado River downstream of its confluence with the Blue River, climate change and beetle kill, are not evaluated. C. MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT The DEIS fails to provide adequate bases for the issuance of a Clean Water Act Section 404 permit. As a result, before any such permit is issued, a new or supplemental DEIS must be prepared. In the alternative, terms and conditions must be imposed that adequately address **the Project's identified impacts and** that provide a fail-safe mechanism to address potential impacts that have not been identified due to absence of critical information. Potential mitigation terms and conditions are suggested at the end of this submittal. 13	that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. The direct impact discussion for aquatic resources (DEIS Section 4.9) identifies minor impacts are anticipated to occur as a result of the Project, particularly since Denver Water would not divert additional West Slope water in dry years. Additionally, diversions during winter months would occur in 2 years during the 45-year study period. In winter months when additional diversions take place, bypass flows would usually be equal to or higher than the average winter flows and always higher than the minimum flow. Past Actions Council on Environmental Quality (CEQ) interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are

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	II. DEIS FINDINGS BY RESOURCE CATEGORY A. SURFACE WATER HYDROLOGY The surface water hydrology impacts analysis provides the foundation for the DEIS evaluation of the Moffat **Project's** potential impacts to the natural and human environment. Modeled, predicted changes in surface water hydrology are used to evaluate impacts on water quality, stream morphology and function, aquatic resources, recreation, and other flow-dependant resources on the west slope. Fundamental flaws and inaccuracies in the DEIS hydrology analysis results in fundamental flaws in the conclusions regarding impacts to these flow-dependant resources as described below **1. The DEIS analysis understates the scope and magnitude of depletions attributable to operation of the Moffat Project.** a. DEIS Conclusions The DEIS predicts specific flow changes in the Fraser River and tributaries, Williams Fork River and tributaries, the Blue River, and in the Colorado River below its confluence with the Fraser and Williams Fork River. These predictions are, in turn, used to evaluate the impacts the Project will have on water quality, stream morphology and function, aquatic resources, water rights, wastewater treatment plant operation, and recreation. b. DEIS Conclusion Errors The DEIS under-**states the magnitude of the Moffat Project's depletions. Its predictions of** surface water hydrology are wrong because: using 2016 as a baseline, it fails to show the changes in stream flows **from "existing conditions" (2006) to future conditions (2030) that** can have significant impacts on the environment; predictions are based on modeled data that is inconsistent with actual data; it uses an arbitrary future baseline that artificially **"frontloads" demands before 2016;** it ignores significant stream reaches; it uses a study period that ended nearly 20 years ago; it uses annual and monthly averages to estimate stream flow changes that affect aquatic resources on a daily basis. (i) **2016 "Full Use of Existing System" as Baseline** Using 2016 "Full Use Existing System" as the baseline masks the true impacts to stream flows on the West Slope because it ignores impacts that occur between existing conditions and Project diversions and are aggravated by the additional Moffat Project diversions. The DEIS provides no rational basis for this approach. Using a 2016 baseline cannot display the delta, i.e., the change in stream conditions between existing (2006) conditions and 2030. This hypothetical baseline is meaningless and misleading as an indicator of the significance of the impacts of the proposed project because it is not a statement of existing conditions. The Full Use Existing System scenario reflects operation of Denver Water's existing system in 2016 without a Moffat Project online, but includes new projects, changes in existing projects, increases in demand levels and new demands, and significantly, the proposed Windy Gap 14	accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversions locations modeled in PACSM. ***Comment #836-110*** *(ID 4744)**:*** *Moffat Project Impacts by Resource Category. For each resource category, this section highlights circumstances where DEIS conclusions are in error and unreported environmental consequences are likely to occur because of the Moffat Project. It is a summation of information presented in Section II of this Report. [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] In general, the DEIS understates the magnitude of depletions caused by the Project, misrepresents their timing, uses flawed methodology and arbitrary screening criteria that preclude evaluation of significant impacts, and fails to ask or evaluate critical questions, such as the potential for dramatic, threshold changes to the affected aquatic system. In instances when the DEIS does identify potential Project impacts, they are dismissed as "negligible," "minor," or "moderate" without valid scientific substantiation. As a result, the DEIS fails to propose adequate measures to avoid, minimize or mitigate impacts that will cause or*

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	Firming Project is on line. The impacts of these increased depletions are not evaluated. *(DEIS, Appendix H, Table H-1.2)* The two examples that follow illustrate how the increase in diversions are understated by **using 2016 as a "baseline" instead of** 2006 existing conditions. ***At the Colorado River below Windy Gap.*** Average annual flows in the Colorado River below Windy Gap under the Proposed Action are predicted to be 126,767 acre feet, a decline of **7,918 acre feet or 6% compared to 2016 "Full Use" "baseline"** conditions. *(DEIS Appendix H, Table H-7.1)* However, compared to 2006 existing conditions, the decrease in stream flow would be 28,886 acre feet or 18%. TABLE 1: AVERAGE ANNUAL FLOWS – COLORADO RIVER BELOW WINDY GAP DIVERSION "EXISTING" CONDITIONS*, 2016 FULL USE CONDITIONS AND 2030 PROPOSED ALTERNATIVE (Measured in Acre Feet) | | 2006 Existing Conditions | 2016 Full Use Conditions | 2030 Proposed Alternative Conditions | Difference: 2030 Less 2006 Existing Conditions | Difference: 2030 Less 2016 Full Use Conditions | | DEIS | 155,653 | 134,685 | 126,767 | - 28,886 (18%) | -7,918 (6%) | Source: Data from DEIS, Appendix H, Table H-7.1 ***At the Moffat Tunnel***. A similar under-statement in diversion occurs at the Moffat Tunnel. The DEIS reports a 13% increase in diversion at the Moffat Tunnel between the 2030 Proposed Alternative a**nd 2016 Full Use "baseline" conditions. However, when comparing** the 2030 Proposed Alternative diversion with an annual average of actual historic diversions, there would be a 38% increase in diversion at the Moffat Tunnel. The top portion of the table below taken from the DEIS *(DEIS, Table H-7.1)* The bottom portion of the table compares actual historic diversion data with 2030 conditions. TABLE 2: AVERAGE ANNUAL DIVERSION AT THE MOFFAT TUNNEL: EXISTING CONDITIONS, 2016 FULL USE CONDITIONS AND 2030 PROPOSED ALTERNATIVE (Measured in Acre Feet) | | 2006 Existing Conditions | 2016 Full Use Conditions | 2030 Proposed Alternative Conditions | Difference: 2030 Less 2006 Existing Conditions | Difference: 2030 Less 2016 Full Use Conditions | | DEIS * | 63,799 | 66,512 | 76,797 | | + 10,285 (13%) | | Actual ** | 47,705 | | 76,797 | + 29,029 (38%) | | * Data from DEIS Appendix H, Table H-7.1 ** Based on the annual average of actual diversion records (1936 – 2006) rather than modeled data. 15	*contribute to the significant degradation of affected streams and aquatic habitat.* **Response #836-110:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA. ***Comment #836-109*** *(ID 4743)**:*** *SURFACE WATER HYDROLOGY – STREAMFLOW DEPLETIONS (See Section II.A.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Flawed Conclusion: The magnitude of streamflow depletions due to the Moffat Project are understated and underreported. The DEIS fails to recognize that streamflow is the foundation upon which all other environmental consequences in Grand County and Summit County are measured. DEIS Conclusion Errors: - Use of the 2016 "Full Use System" as the baseline masks true streamflow impacts. - Discrepancies between modeled conditions and actual data are under-reported, understating future Project depletions and associated Project impacts. - Impacts of significant streamflow reductions between 2006 and 2016 due to Denver Water depletions are excluded from the analysis. - 2016 "baseline" assumptions inflate demand forecasts. - The study period excludes the full range of existing hydrological conditions. - Depletions to the Colorado River below Kremmling were excluded. - Analyzing streamflows in monthly averages understate environmental impacts. Environmental Consequences: - Understated and inaccurate forecasts of streamflow depletions associated with the Project make subsequent impact analysis on water quality, stream morphology, aquatic life, recreation and land use wrong. [SEE SECTIONS II.B THROUGH II.H IN ATTACHMENT, JOINT REBUTTAL REPORT.]*

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	(ii) **Magnitude of Hydrologic Modifications** The magnitude of hydrologic modifications due to the Moffat Project is under-reported because DEIS **modeled "current" conditions do not reflect actual existing conditions**. *Moffat Tunnel*. Colorado **Division of Water Resources'** *actual* diversions records show an average Moffat Tunnel delivery (SID 4655) of 57,322 acre feet per year (1984-2008). http://cdss.state.co.us/DNN/default.aspx. The DEIS shows *modeled*, "current conditions" **diversions through the Moffat Tunnel of 63,799** acre feet per year *(DEIS, Appendix H, Table H-7.1)*. This overstates average annual diversions by 6,477 acre feet. *Gumlick Tunnel*. **Denver Water's** *actual* Gumlick Tunnel diversion records show average diversions of 4,930 acre feet per year (1985-2006). *Denver Water Records entitled Jones Pass Tunnel (aka August P. Gumlick) Diversions from 1940-2006*. The DEIS shows *modeled* "current conditions" **diversions through the Gumlick Tunnel of** 8,853 acre feet per year *(DEIS, Appendix H, Table H-7.1)*. This overstates average annual diversions by 3,923 acre feet. *Roberts Tunnel*. **Denver Water's** *actual* Roberts Tunnel diversion records show average diversions of 56,227 acre feet per year (1964-2008). http://cdss.state.co.us/DNN/default.aspx. The DEIS shows *modeled* **"current"** diversions through the Roberts Tunnel of 69,676 af/yr (DEIS, Table H-7.1). This overstates average annual diversions by 13,449 acre feet. ***Streamflow amounts are under-stated during months the Project proposes to divert.*** Because the DEIS uses modeled diversion data rather than *actual* diversion data, stream flows below the Moffat Collection System under existing conditions are under-stated. Table 3, compares *actual* gauged data in a dry year (2002) and a wet year (1984) to DEIS *modeled* average data for dry and wet years for the months of May, June and July, when the majority of Project diversions are proposed. The effect of using modeled versus actual data is to understate the impacts of the Project during dry years and the magnitude of diversions during wet years as shown by the follow examples: *Dry Years*. Actual 2002 stream flows at the Fraser River at the Granby Gage averaged 16 cubic feet per second in June, whereas the *model* predicts an average dry year flow of 89 cubic feet per second in June at that same gage, a discrepancy of 82%, (Table 3). *Wet Years*. Actual 1984 stream flows at the Fraser River near the Winter Park Gage averaged 124 cubic feet per second in May, where the *model* predicts an average wet year flow of 32 cubic feet per second at the same gage, a discrepancy of 288%, (Table 3). ***The analysis of impacts to the aquatic environment cannot be accurate***. Because the **modeled** "current conditions" **diversions are over**-stated and the decrease in stream flows due to the Moffat Project are under-stated, the analysis of the impact of Moffat Project depletions on the aquatic environment, recreation and water and wastewater facilities is called into question. 16	**Response #836-109:** Regarding the use of Full Use of the Existing System as the baseline condition, please see the response to Comment ID 4668. The purpose of the Current Conditions scenario is to represent hydrologic conditions that would occur over the 45-year study period under Current Conditions, including facilities, operations, consumptive and non-consumptive water rights, instream flow rights, demand levels, operating rules, and other water management considerations and preferences throughout the Upper Colorado River basin. The Current Conditions scenario is not intended to replicate historical flows at USGS gages and diversions at the Moffat, Gumlick, and Roberts tunnels as suggested in the comment. The Current Conditions scenario accurately depicts current level of diversions and does not understate the incremental change that would occur with a Project on-line. It is not appropriate to compare Current Conditions model data to historical data to evaluate effects for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. One would expect potentially large differences when comparing model results with historic records. If modeled flows with the proposed Moffat Project on-line are compared to historical flows, the differences would reflect all changes that have occurred and not just the effects of the proposed Moffat Project. Modeled Current Conditions Moffat Tunnel diversions (63,799 AF/yr) are higher than the average annual Moffat Tunnel diversion of about 48,000 AF for the period from 1936 through 2006 because Current Conditions diversions

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	TABLE 3 - COMPARISON OF AVERAGE MONTHLY STREAMFLOW ACTUAL HISTORICAL CONDITIONS & DEIS "CURRENT CONDITIONS" (measured in cubic feet per second) ***Dry Years*** (1) **Actual Historical Conditions** Based upon **2002** Gage Data (2) **DEIS "Current Conditions"** Based upon Dry Year Average in Appendix H-1 (3) **Percent Difference** Between "Current Conditions" and Actual Historical Conditions Location: Vasquez Creek Gage — May 7, June 8, July 7; DEIS May 10, June 11, July 10; Percent Difference May 30%, June 27%, July 30% Location: Fraser River at Granby Gage — May 38, June 16, July 11; DEIS May 120, June 89, July 56; Percent Difference May 68%, June 82%, July 80% ***Wet Years*** (1) **Actual Historical Conditions** Based upon **1984** Gage Data (2) **DEIS "Current Conditions"** Based upon Wet Year Average in Appendix H-1 (3) **Percent Difference** Between "Current Conditions" and Actual Historical Conditions Location: Fraser River near Winter Park Gage — May 124, June 230, July 114; DEIS May 32, June 139, July 55; Percent Difference May -288%, June -65%, July -107% Location: Fraser River at Granby Gage* — May 296, June 1,153, July 938; DEIS May 662, June 1,139, July 436; Percent Difference May 55%, June -1%, July -115% Location: Colorado River at Kremmling Gage — May 6,200, June 7,160, July 4,939; DEIS May 3,198, June 6,252, July 3,750; Percent Difference May -94%, June -15%, July -32% **Notes:** *1995 was used to reflect wet year conditions at the Fraser River at Granby Gage because 1984 data is not available. **(1)** All actual historical gage data is based upon daily streamflow data available from SEO CDSS database. Wettest (1984) and driest (2002) years are based upon the historical stream gage record at the Colorado River near Kremmling gage. **(2)** DEIS "Current Conditions" are based upon: Vasquez Creek Gage: Table H-1.13; Fraser River near Winter Park Gage: Table H-1.10; Fraser River at Granby Gage: Table H-1.26; Colorado River at Kremmling Gage: Table H-1.36 **(3)** The percent difference between actual historical conditions and "current conditions" is equal to (2) less (1) divided by (2). Positive values indicate that DEIS "Current Conditions" are greater than actual historical conditions. Negative values indicate that DEIS "Current Conditions" are less than actual historical conditions. Source: **Diversion Records and Streamflow Data from Colorado Division of Water Resources' Colorado** Decision Support Systems (CDSS) website: http://cdss.state.co.us/DNN/default.aspx 17	reflect meeting an average annual demand for Denver Water of 285,000 AF/yr whereas, the average annual demand met during the period from 1936 through 2006 was less. In addition, there are likely differences in the averages because the periods compared are different lengths and may be hydrologically different. It is possible that the period from 1936 through 2006 is wetter overall than the period from 1947 through 1991, which could also partially explain why the historical average is lower. These reasons also apply to differences in Current Conditions versus historical Gumlick Tunnel and Roberts Tunnel diversions and flows in the Fraser and Colorado rivers. For example, at some locations in the Fraser River basin, average monthly dry year streamflows for Current Conditions are higher than actual streamflows in 2002 for several reasons. The average monthly dry year streamflow is an average of the five driest years during the study period whereas 2002 is the driest year on record in the Fraser River basin. Furthermore, bypass flows were reduced in 2002 whereas bypass flows were not reduced in two of the five years selected for the dry year average because storage triggers were not met. The Proposed Action would not change flows during dry years.. Similar to dry years, average monthly wet year streamflows for Current Conditions are lower than actual streamflows in 1984 at some locations in the Fraser River basin and along the Colorado River because the average monthly wet year streamflow is an average of the five wettest years during the study period, whereas 1984 is the wettest year on record at the locations shown in Tables 3 and 5 of the Joint Rebutall Report. In addition, the demand met in the five wettest years under Current Conditions is different than the demand met in 1984. Differences in the timing of filling Gross Reservoir and the timing and magnitude of spills at other reservoirs in the Upper Colorado River basin can also result in differences in Current Conditions average wet year monthly flows versus historical flows in 1984.

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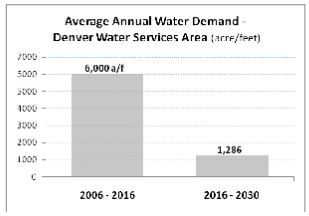
	(iii) **2016 "Baseline"** Demand Assumptions  The DEIS **2016 "baseline" assumptions are based** on inflated demand predictions. The DEIS analyzes the impacts of the Project by comparing the PACSM modeled future baseline of **"Full Use"** (2016) to the PACSM **modeled "Full Use w/Project" (Proposed Alternative, 2030).** *(DEIS, Page 4-10)*. **Impacts between "Current Conditions" (2006) and "Full Use" (2016) are** sometimes discussed, but are not fully evaluated and are not used to draw conclusions about **the Project's impacts to the environment.** **The DEIS overstates Denver Water's demands in 2016, thus under**-reporting Project depletions and the resulting environmental impacts. .Demand between modeled existing conditions (2006) and the Full Use conditions (2016) is assumed to be 6,000 acre feet per year. In contrast, the increase in demand between the Full Use (2016) and the Moffat Project (2030) is assumed to be only 1,286 acre feet per year. The inflated demand projection means that the depletions predicted by the DEIS between 2006 and 2016 are greater than they will really be (thus, the DEIS **"front load**ed" the majority of the impact). Examples of this **artificial "f**ront-**loading" of depletions and impacts include:** • Assumption that most conservation savings will occur after 2016. While the DEIS indicates that there will be conservation saving both before and after 2016, it does not factor in conservation savings before 2016. **It is unrealistic that Denver Water's demands,** and the expected diversions, will suddenly drop following 2016. • No mandatory restrictions in dry times. The DEIS does not include estimated demand reduction due to mandatory water restrictions in dry times. • No reduction of per capita use. The DEIS does not take into account reduction of per capita uses since 2002 or reflect current demand levels and recent growth compared to projected population in 2016. • Demand includes obligations contingent upon construction of the Moffat Project. Modeled 2016 demand projections include a 3,000 acre feet per year contractual obligation to the City of Arvada that is contingent upon approval of the proposed Project and, therefore, would not occur but for the Project. Accordingly, impacts associated with that demand should be evaluated for the period between 2016 (Full Use) and 2030 (Moffat Project), not for the period between 2006 (Existing Conditions) and 2016 (Full Use). (iv) **Depletions Downstream of Kremmling** The DEIS does not evaluate the impacts of the Project on the Colorado River downstream of Kremmling because it concludes that the change in annual flow at this location is less than **10%, the DEIS's artificially imposed threshold for evaluating impacts.** *(DEIS, page 3-4)*. This 10% screening criteria is unjustified and the conclusion that flow reductions are less than 10% often is in error. *Annual* average changes in total annual volume may be less than 10% 18	The model study period used in the DEIS (from 1947 through 1991) provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts. The potential of extending the study period and/or using additional periods for comparative analyses was considered in relation to whether these alternative hydrologic inputs would change conclusions regarding the yield of the Moffat System and/or change conclusions related to effects on hydrologic and other resource areas. With regard to inclusion of more recent hydrology, Denver Water would not divert additional water due to the proposed Moffat Project in drought years like 2002 because Denver Water would have already diverted the maximum amount of water physically and legally available under their existing water rights without additional storage in their system. Denver Water's analysis also concluded that, for Denver Water's system, the mid-1950's drought is a more severe drought period than the recent drought. In other words, given full-use water demands, supplies, and facilities, there would be less water in Denver Water's storage at the end of the 1950's drought than at the end of 2002. The model study period used in the DEIS also addressed the carry-over and recovery effects of additional Denver Water diversions in wet years following dry years like 2002 and 2003. The DEIS study period includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill storage. For example, the DEIS study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), and 1981 (dry year) followed by several wet years in the mid-1980's. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives for both direct effects and cumulative

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	but, on average, the *monthly* average changes in flow are greater than 10% in the months that Moffat Project diversions will occur *(DEIS, Tables H-3.32 and H-1.36):* TABLE 4: MONTHLY CHANGES IN STREAMFLOW, DOWNSTREAM OF KREMMLING In Average Years: May 12%; June – 18%; July: – 3%; August – 11% In Wet Years: May 16% Source: DEIS, Appendix H, Tables H-3.32 and H-1.36 This is an example of how the DEIS use of averages prevents the analysis of impacts on aquatic resources that occur on a monthly or daily basis. (v) **DEIS Study Period** The DEIS study period fails to capture the full range of anticipated changes to hydrologic conditions accurately. The DEIS conclusions are based on predicted hydrologic changes using the period of record of 1947-1991. As Denver Water concluded in its Aug 28, 2003 **Study Period and Verification Period Selection Operating Information memorandum: "The** study period selection is important for several reasons. It determines the number and type of extreme hydrologic events which will be simulated and can influence the conclusions drawn **from a study…. The study period selected must be representative of the true basin hydrologic conditions, or erroneous conclusions could be drawn from the simulation results." However,** the period of record used in the DEIS excludes critical extreme high and low flow conditions observed in the Fraser and Colorado River basin. For example, the DEIS does not accurately portray the five wettest and driest years on record for the Upper Colorado River Basin. The consequences of this are that the DEIS may understate the magnitude and duration of extreme hydrologic events. Table 5 displays the actual five driest and five wettest years on record for various locations in the basin based on gauged data, and highlights the years that are not included in the DEIS/PACSM study period. Table 5 shows that the PACSM hydrology period completely misses one or more of the driest years and the wettest years at nearly every location. By not including the dry years such as 2002 in the PACSM modeling, the DEIS may underestimate the effects of the Project. 19	effects because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. Extension of the modeling period and consideration of tree-ring data to include additional dry years would not substantially change the range of hydrologic conditions or the predicted impacts to flows as a result of the proposed Moffat Project. While tree ring-based reconstructions of Colorado River flows may show greater hydrologic variability than that reflected in the gaged record, particularly with respect to drought, the inclusion of more severe dry years in the study period would not change the evaluation of hydrologic impacts due to the Moffat Project because the Moffat Project would not increase diversions in these years over the diversions that would take place without the Project. In summary, modifications to the modeled study period and the use of paleo-hydrology is not warranted. Regarding depletions to the Colorado River below Kremmling, please see the response to Comment ID 4723. Regarding the use of average statistics, please see the response to Comment ID 4721. As presented in the responses to the comments noted above, streamflow depletions associated with the Project were not understated. ***Comment #836-105*** *(ID 4742)**:*** *SURFACE WATER HYDROLOGY – PEAK FLOWS [SEE SECTION II.A.2 IN ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Flawed Conclusion: The "overall pattern of the flow regime" in the Fraser River will be the same. DEIS Conclusion Errors: - The Moffat Project will not significantly reduce remaining peak flows. - Peak flow conditions are neither disclosed nor evaluated between 2006 and 2016. - Changes in magnitude of peak flows*

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	TABLE 5 - DRIEST AND WETTEST YEARS AT SELECT UPPER COLORADO RIVER BASIN LOCATIONS BASED UPON ACTUAL STREAM GAGE DATA **Colorado River below Baker Gulch** Period of record: 1954-2009 **Ranch Creek near Fraser** Period of record: 1947-2009 **St. Louis Creek near Fraser** Period of record: 1947-2009 **Williams Fork River near Parshall** Period of record: 1947-2009 **Williams Fork River near Leal** Period of record: 1947-2009 **Colorado River near Kremmling** Period of record: 1962-2009 (excluding 1971) 20	*attributable to the Project are not properly evaluated; changes in timing and frequency of peak flows are not evaluated at all. Environmental Consequences: - Changes to the natural flow regime can adversely impact aquatic life. - Failure to properly evaluate changes in peak flows makes subsequent analysis on water quality, stream morphology, aquatic life, recreation and land use incomplete and inadequate. [SEE SECTIONS II.B THROUGH II.H IN ATTACHMENT, JOINT REBUTTAL REPORT.)* **Response #836-105:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year

Colorado River below Baker Gulch

Rank	Water Year	Total Annual Volume (af)
Driest		
1	1954	19,060
2	**2002**	19,095
3	1981	22,092
4	1977	24,968
5	1989	25,680
Wettest		
1	1983	79,009
2	1984	77,155
3	**1997**	75,487
4	**1995**	71,040
5	1986	66,155

Ranch Creek near Fraser

Rank	Water Year	Total Annual Volume (af)
Driest		
1	1964	1,851
2	1963	1,896
3	**2002**	1,972
4	1968	2,441
5	1989	2,859
Wettest		
1	1983	22,720
2	1984	21,111
3	**1995**	20,210
4	1952	20,183
5	1949	18,387

St. Louis Creek near Fraser

Rank	Water Year	Total Annual Volume (af)
Driest		
1	**2002**	5,673
2	**2004**	7,219
3	1963	7,222
4	**2001**	7,615
5	1964	8,048
Wettest		
1	**1995**	35,411
2	1952	34,760
3	1951	33,597
4	1947	32,868
5	1983	31,130

Williams Fork River near Parshall

Rank	Water Year	Total Annual Volume (af)
Driest		
1	**2002**	27,789
2	1963	28,118
3	1954	30,330
4	1977	30,482
5	1966	36,725
Wettest		
1	1984	180,270
2	1983	168,879
3	**2008**	144,189
4	1962	134,745
5	1952	130,302

Williams Fork River near Leal

Rank	Water Year	Total Annual Volume (af
Driest		
1	**2002**	25,738
2	1954	32,855
3	1963	33,218
4	1977	38,902
5	1966	42,542
Wettest		
1	1984	127,608
2	1983	121,005
3	**1995**	111,830
4	**1996**	108,970
5	**1997**	101,779

Colorado River near Kremmling

Rank	Water Year	Total Annual Volume (af)
Driest		
1	**2002**	378,513
2	**2004**	392,927
3	1964	412,112
4	1981	419,556
5	**2003**	432,119
Wettest		
1	1984	1,726,163
2	1983	1,307,073
3	**1997**	1,249,093
4	1962	1,209,679
5	**1996**	1,148,566

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		would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and

Fraser River at Winter Park

Rank	Water Year	Total Annual Volume (af)
Driest		
1	1954	4,292
2	**2002**	4,608
3	1963	4,661
4	1964	4,752
5	1981	4,901
Wettest		
1	1984	34,149
2	1957	31,634
3	1983	31,136
4	**1995**	30,870
5	**1996**	24,148

Period of record: 1947-2009

Vasquez Creek at Winter Park

Rank	Water Year	Total Annual Volume (af)
Driest		
1	1963	1,668
2	1964	1,943
3	1954	2,518
4	1968	2,962
5	1966	2,991
Wettest		
1	1983	28,124
2	1984	25,290
3	**1995**	25,062
4	**2009**	20,936
5	1958	20,776

Period of record: 1947-2009

Colorado River near Dotsero

Rank	Water Year	Total Annual Volume (af)
Driest		
1	**2002**	650,183
2	1977	808,554
3	1954	830,043
4	**2004**	842,033
5	1981	870,792
Wettest		
1	1984	3,029,598
2	1983	2,358,362
3	**1997**	2,347,290
4	1962	2,317,164
5	1957	2,293,154

Period of record: 1947-2009

Williams Fork below Williams Fork Reservoir

Rank	Water Year	Total Annual Volume (af)
Driest		
1	1959	28,322
2	1967	30,613
3	1954	42,670
4	1965	50,139
5	1990	50,357
Wettest		
1	1984	184,538
2	1983	162,217
3	**2008**	149,810
4	**1996**	147,777
5	1952	143,278

Period of record: 1950-54, 1959-2009

Williams Fork below Steelman

Rank	Water Year	Total Annual Volume (af)
Driest		
1	**2002**	1,748
2	**2004**	2,824
3	1976	2,981
4	1981	3,729
5	1977	3,729
Wettest		
1	**1995**	28,228
2	1984	28,025
3	1983	24,002
4	**1996**	23,160
5	**1993**	22,470

Period of record: 1966-2009

NOTES:

Moffat DEIS top 5 driest years at all locations: 1954, 1955, 1963, 1977, 1981

Moffat DEIS top 5 wettest years at all locations: 1952, 1962, 1983, 1984, 1986

Water year is defined as October 1 through September 30

Shaded years indicate years that are not included in the PACSM model study period (1947-1991).

Source: Streamflow Data from the U.S. **Dept of Interior, U.S. Geological Survey's website:** http://waterdata.usgs.gov/co/nwis/current/?type=flow&group_key=basin_cd

Not only does the DEIS study period fail to report the driest years on record, it is flawed because it does not indicate whether or not the five driest and five wettest years selected for the analysis reflect the wettest and driest years that will occur under existing conditions or following completion of the Moffat Project. Table 6 displays the total annual volume, calculated using the UPCO tool, in the five wettest and driest years used in the DEIS compared to the modeled wettest and driest years under the UPCO PACSM3 (Alternative 1a) scenario. As Table 6 indicates, five wettest and five driest years used to analyze the effects of the Moffat project do not necessarily reflect the driest and wettest years as calculated under

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	the preferred alternative using the UPCO tool. This practice misrepresents the effect of the Moffat project scenarios. TABLE 6 - COMPARISON OF DEIS AND UPCO PACSM3 SCENARIO DRIEST AND WETTEST YEARS FRASER RIVER AT WINTER PARK Top 5 Driest Years UPCO PACS3 Scenario / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) / Top 5 Wettest Years UPCO PACS3 Scenario / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 4,505 / 1 1983 19,451 2 1976 4,513 / 2 1984 19,140 3 1961 4,549 / 3 1952 14,230 4 1964 4,609 / 4 1969 12,074 5 1955 4,620 / 5 1947 11,653 Average Volume: 4,559 / Average Volume: 15,310 Top 5 Driest Years DEIS / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) / Top 5 Wettest Years DEIS / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 4,505 / 1 1952 14,230 2 1955 4,620 / 2 1962 5,415 3 1963 4,788 / 3 1983 19,451 4 1977 4,649 / 4 1984 19,140 5 1981 4,830 / 5 1986 7,494 Average Volume: 4,678 / Average Volume: 13,146 Difference in Average Annual Volume (ac-ft): Dry Years (ac-ft) 119 / Wet Years -2,164 FRASER RIVER AT GRANBY Top 5 Driest Years UPCO PACS3 Scenario / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) / Top 5 Wettest Years UPCO PACS3 Scenario / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 35,088 / 1 1984 197,692 2 1977 42,621 / 2 1983 170,194 3 1963 44,046 / 3 1952 155,200 4 1976 44,169 / 4 1970 130,115 5 1961 45,876 / 5 1947 123,549 Average Volume: 42,360 / Average Volume: 155,350 Top 5 Driest Years DEIS / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) / Top 5 Wettest Years DEIS / Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft) 1 1954 35,088 / 1 1952 155,200 2 1955 53,046 / 2 1962 106,561 3 1963 44,046 / 3 1983 170,194 4 1977 42,621 / 4 1984 197,692 5 1981 46,448 / 5 1986 84,686 22	sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #836-103*** *(ID 4741)**:*** *SURFACE WATER HYDROLOGY - DRY YEARS (See Section II.A.3) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The Moffat Project will not increase the frequency and duration of dry year conditions. DEIS Conclusion Errors: - The Moffat Project will increase the frequency and duration of dry year conditions. - There is no evaluation of impacts associated with a permanent increase in the frequency and duration of dry year conditions and the possibility of back-to-back dry years. Environmental Consequences: - During dry years, stresses on water quality, aquatic life, stream morphology, wastewater providers, agricultural irrigators, and recreation users are particularly acute. These impacts are not addressed. (See Sections II.B through II.H) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]*

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		Response #836-103: Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources. A discussion of the effects of changes in dry year patterns on aquatic resources is included in the FEIS in Sections 4.6.11 and 5.11. ***Comment #836-102*** *(ID 4740)**:*** *SURFACE WATER HYDROLOGY – SMALL FLOW REDUCTIONS (See Section II.A.4) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion. Stream flow reductions in the Fraser River and small tributaries is small and, therefore, insignificant. DEIS Conclusion Errors: - Small stream flow reductions in small streams can have a significant impact on aquatic resources. - DEIS does not evaluate situations where streamflows will change more than 1 cubic-foot-per- second 20% of the time. - Stated streamflow reductions of 20% and more are reported to be "insignificant." Environmental Consequences: Streamflow reductions of the magnitude stated above may significantly impact macroinvertebrate populations, fisheries, habitat connectivity and water quality.* **Response #836-102:** Please see the response to Comment ID 4713. ***Comment #836-104*** *(ID 4739)**:*** *WATER QUALITY – SIGNIFICANCE OF IMPACTS (See Section II.B.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: There will be no significant water quality impacts from the Project in the Fraser, Williams Fork and Upper Colorado Rivers and tributaries. DEIS Conclusion Errors: - There are a substantial number of existing, known water quality problems including existing exceedences of State water quality standards which the Project is likely to exacerbate; many of these*

Average Volume:	44,250		Average Volume:	142,867
Difference in Average Annual Volume (ac-ft):				
Dry Years (ac-ft)	1,890		Wet Years	-12,484

COLORADO RIVER NEAR KREMMLING

Top 5 Driest Years UPCO PACS3 Scenario		Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft)		Top 5 Wettest Years UPCO PACS3 Scenario		Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft)
1	1964	375,492		1	1984	1,630,707
2	1967	387,716		2	1983	1,133,301
3	1955	403,809		3	1952	1,023,166
4	1991	414,399		4	1986	1,000,738
5	1981	421,783		5	1985	972,310
Average Volume:		400,640		Average Volume:		1,152,044

Top 5 Driest Years DEIS		Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft)		Top 5 Wettest Years DEIS		Total Annual Volume based on UPCO PACSM3 Scenario Data (ac-ft)
1	1954	488,369		1	1952	1,023,166
2	1955	403,809		2	1962	876,126
3	1963	435,187		3	1983	1,133,301
4	1977	447,841		4	1984	1,630,707
5	1981	421,783		5	1986	1,000,738
Average Volume:		439,398		Average Volume:		1,132,808
Difference in Average Annual Volume (ac-ft):						
Dry Years (ac-ft)		38,758		Wet Years		-19,237
Notes:						

Total monthly streamflow volumes are based upon data from the UPCO PACSM Data Display Tool (Hydrosphere, 1/3/2002). The PACSM3 Scenario includes full build-out and incorporates the Moffat Expansion Project and Windy Gap Firming Project.

Highlighted years are common to the wettest and driest years in the UPCO PACSM3 modeling and the wettest and driest years shown in the Moffat Project DEIS.

The difference in average annual volume is equal to the average annual volume of the five wettest or driest years according to the UPCO PACSM3 modeling less the average annual volume of the five wettest or driest years shown in the DEIS (using UPCO PACSM3 data).

Source: Projected Diversions and Streamflow from the Upper Colorado (UPCO) River Basin Study PACSM Data Display Tool (Hydrosphere, May 2003)

Because the selected study period is not representative of expected hydrologic conditions, its conclusions with regard to the effects from the proposed Project diversions are unreliable.

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	(vi) **Use of Average Statistics** **The DEIS use of average statistics to measure flow depletions misrepresents the Project's** adverse effects on the environment. The presentation of hydrologic effects using monthly averages obscures and minimizes the actual variations and extremes that the Moffat Project will cause. For example, actual recorded original Moffat Tunnel diversions show that the minimum and maximum diversions since 1984 are 24,666 acre feet per year and 92,226 acre feet per year, respectively, showing a dry-to-wet year range of over 67,500 acre feet per year (73% of the maximum diversion). Whereas Table H-7.2 and H-7.3 show that the *average* diversions in dry and wet years are currently 52,739 acre feet per year and 57,343 acre feet per year, respectively, showing a dry-to-wet year range of only 4,600 acre feet per year (8% of the maximum diversion shown). Table 3 also shows the differences during the principal diversion months between the modeled average flow in dry or wet years compared to actual streamflow during dry and wet years.). The effects of using the average of the five wettest or driest years on the Fraser River near Winter Park rather than displaying the full range of streamflows in a dry or wet year is illustrated in the detailed Supplementary Tables. For instance, modeled current conditions (using UPCO) in May of the five wettest years range from monthly average values of 8 to 109 cubic feet per second. However, the average of the five wettest years is equal to 33 cubic feet per second. The effects of the predominant use of averages on the DEIS environmental assessment are further described in Section II.B below. c. **Environmental Consequences** Understated and inaccurate forecasts of streamflow depletions make subsequent impact analysis on water quality, stream morphology, aquatic life, recreation and land use inaccurate and the DEIS conclusion regarding impacts wrong. 2. **The DEIS fails to evaluate the magnitude and potential change in timing of peak flow reductions.** The timing and magnitude of peak flows that occur naturally are important for flushing flows to cleanse and protect spawning gravels, prevent smothering of aquatic macroinvertebrates, for channel maintenance flows that help to maintain the connection between the channel and the floodplain and for transporting sediment. Reductions in peak flows as well as changes in the timing of peak flows *(Poff, 1997)* can affect aquatic life, stream health and recreation. 24	*existing problems are not even identified. - Acknowledged exceedences of State stream temperature standards which reflect maximum levels beyond which stream temperature becomes lethal to fish and microinvertebrates have been marginalized or dismissed. - Inappropriately restrictive screening criteria limit the analysis to situations where water quality is already a problem and disregard situations where the Project may trigger a problem. - Impacts due to reduction of cooling groundwater recharge flows are ignored. - Fugitive dust impacts on water quality are ignored. - Water quality degradation between 2006 and 2016 is ignored. Environmental Consequences: - Aquatic life will be compromised more than reported; in fact, there may be lethal impacts to aquatic life. - Grand Lake's water quality and clarity will be further degraded from higher nutrient concentrations in the Fraser River attributable to the Moffat Project.* **Response #836-104:** Please see the response to Comment ID 4704. FEIS Sections 3.11, 4.6.11, and 5.11 contain revised discussions of water temperatures and aquatic biological resources. However, the claim that the Colorado temperature standards are assumed to represent lethal limits is incorrect. The temperature standards are regulatory criteria that broadly apply to a range of waters and to protect multiple species. The discussions in the FEIS focus on the waters and species present in the Project area. As discussed in FEIS Section 5.13.7, a land development construction permit would be required from the CDPHE APCD prior to beginning the land clearing activities. The operating terms and conditions of a land development permit include a Fugitive Dust Control Plan to control emissions of particulate matter (dust). This Fugitive Dust Control Plan would define specific control measures, such as those listed in FEIS Table 5.13 9, that must be

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	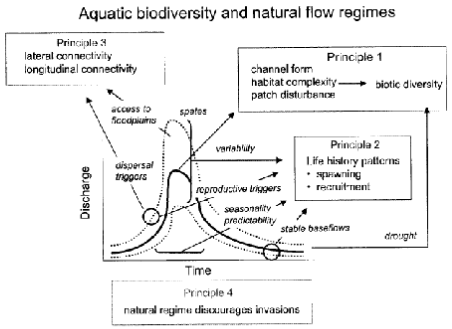 **Figure 1.** The natural flow regime of a river influences aquatic biodiversity via several interrelated mechanisms that operate over different spatial and temporal scales. The relationship between biodiversity and the physical nature of the aquatic habitat is likely to be driven primarily by large events that influence channel form and shape (principle 1). However, droughts and low-flow events are also likely to play a role by limiting overall habitat availability. Many features of the flow regime influence life history patterns, especially the seasonality and predictability of the overall pattern, but also the timing of particular flow events (principle 2). Some flow events trigger longitudinal dispersal of migratory aquatic organisms and other large events allow access to otherwise disconnected floodplain habitats (principle 3). The native biota have evolved in response to the overall flow regime. Catchment land-use change and associated water resource development inevitably lead to changes in one or more aspects of the flow regime resulting in declines in aquatic biodiversity via these mechanisms. Invasions by introduced or exotic species are more likely to succeed at the expense of native biota if the former are adapted to the modified flow regime (principle 4). Bunn, S.E. & A.H. Arthington. 2002. *Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity*. Environmental Management. 30(4) pp. 492-507. a. **DEIS Conclusion** The DEIS c**oncludes that the "overall pattern of the flow regime" in the Fraser River will "be the same, with the highest flows during spring runoff and lowest flows in the winter . . ."** *(DEIS, page 4-316)*. b. **DEIS Conclusion Errors** The DEIS conclusion is misleading because the magnitude of peak flows projected in 2030 will be only slightly greater than winter base flows (See Figure 2 in Section III). Moreover, the DEIS does not provide information necessary to evaluate the magnitude or changes in timing of peak flow reductions and their impact on the resources. (i) **Peak Flow Conditions** The DEIS fails to disclose and evaluate anticipated peak flow reductions between existing conditions (2006) and Full Use (2016). Peak flow reductions that occur before 2016 could 25	complied with by Denver Water and its contractors throughout the Project to minimize the release of fugitive dust. Information provided in DEIS Sections 3.1 and 3.2 provide the reasons this Project would not cause a reduction in groundwater discharges into streams on the West Slope. A summary of the pertinent DEIS information follows. The groundwater flow system of the Fraser River watershed is hydraulically interconnected with the potentially affected stream segments. In the lower parts of the Fraser Valley, groundwater flows into the Fraser River and supports the base flow. This Project would only cause minor changes to the duration of the higher stream flows downstream of the existing diversion points during high runoff periods. At most, the additional diversions would cause only minor changes in stream levels downstream of the diversion points. However the maximum change in groundwater level would be less than the maximum change in the high-flow stream level, which was estimated in the DEIS to be about 8 inches. The changes would only occur during the months when runoff and water levels are high. There would be no effect on groundwater recharge rates in the uplands of the watershed, and thus there would be essentially no change on groundwater discharge rates into the Fraser River lower in the valley. Thus the Project would have no effect on groundwater levels or flows throughout the majority of the Fraser River watershed beyond the immediate limits of the diverted streams. Next to those streams, groundwater levels would decrease slightly compared to Current Conditions during May, June, and July. During the low flow season, groundwater discharge would support the Fraser River base flow, as is currently the case.

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	have a significant impact on stream resources. These impacts would be aggravated by the additional peak reductions resulting from operation of the project after 2016. The DEIS describes the magnitude of peak flow reduction between 2016 and 2030 (Project operation), but it does not provide any context regarding the actual changes to the projected peak flow rates between existing conditions and after the Project is completed in 2030. Table 7 below presents a comparison of the maximum daily flow reduction indicated in the DEIS *(DEIS, Table H-6)* to the actual maximum peak daily recorded streamflow from the available gage data at several locations in the upper basin. Table 7 shows that the Moffat Project would reduce peak streamflow at five locations in the watershed by as much as 78% compared to actual pre-project streamflow. This significant change in peak flows is neither disclosed nor evaluated. TABLE 7 MAXIMUM DAILY ACTUAL HISTORICAL STREAMFLOW AND PERCENT REDUCTION DUE TO MOFFAT PROJECT (PROPOSED ALTERNATIVE 1A AND NO ACTION) (1) (2) (3) (4) (5) (6) DEIS Maximum Daily Streamflow Reduction; Actual Historical; Percent Maximum Flow Reduction Stream Gage; Proposed Alternative (cfs); No Action Alternative (cfs); Maximum Daily Streamflow (Post-Moffat) (cfs); Date of Maximum Streamflow; Proposed Alternative 1a; No Action Alternative Fraser River at Winter Park; 330; 280; 440; 7/9/1983; 75%; 64% Fraser River at Granby; 729; 686; 2,081; 6/8/1997; 35%; 33% Vasquez Creek at Winter Park; 325; 200; 417; 6/25/1983; 78%; 48% St. Louis Creek near Fraser; 201; 201; 418; 6/18/1995; 48%; 48% Williams Fork River below Steelman Creek; 177; 167; 395; 7/12/1995; 45%; 42% Colorado River near Kremmling; 3,319; 3,419; 12,700; 5/26/1984; 26%; 27% **Notes:** Columns (1) and (2) are based upon Tables in DEIS Appendix H-6. In the DEIS, maximum daily flow reductions are reported for the May through July time period only. Columns (3) and (4) The actual historical maximum daily flow is based upon CO Div. of Water Resources database records at the gages listed after 1936 (Moffat Project). Column (5) is equal to (1) divided by (3). Column (6) is equal to (2) divided by (3). This table reflects a comparison between actual historical peak flows and the maximum peak flow reduction between the full use existing scenario and either Alternative 1a or the No Action Alternative. It does not account for reductions in peak flow from the modeled "Current" scenario to the "Full Use Existing Scenario." Therefore, the percent reductions shown here are potentially less than the peak flow reductions that the stream system may actually experience between the actual historical peak flows and the implementation of one of the alternatives. Sources: DEIS, Appendix H, H-6; Colorado Division of Water Resources database; Grand County Stream Management Plan, TetraTech, et al, April 2008 26	The FEIS includes additional analyses of stream flow changes in all the potentially affected stream segments and tributaries to clarify the effects of the Denver Water planned changes, RFFAs and this Moffat Project. Additional groundwater data collected in the fall of 2010 has been provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project-related effects on groundwater levels and stream interactions. ***Comment #836-101*** *(ID 4738)**:*** *WATER QUALITY – WASTEWATER TREATMENT (See Section II.B.2) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The Project will have only negligible impacts to Grand County and Summit County wastewater treatment providers and their discharge permits. DEIS Conclusion Errors: - Screening criteria inappropriately exclude situations where the Project will likely trigger discharge permit violations. - The DEIS does not apply the testing criteria used by the CDPHE for discharge permits. - DEIS ignores the current challenges that Hot Sulphur Springs confronts and the specific permitting conditions imposed on it by the State. Environmental Consequences: - Complying with discharge permit conditions will become more expensive due to lower flows and increasing concentrations of copper, ammonia and dissolved oxygen. - State statutes require the wastewater treatment provider to bear all compliance costs.* **Response #836-101:** Please see the response to Comment ID 4699. ***Comment #836-100*** *(ID 4737)**:*** *STREAM MORPHOLOGY – SEDIMENTATION (See Section II.C.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: For the*

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	(ii) **Peak Flow Timing** The DEIS fails to evaluate the timing of changes in peak flows. The timing of peak flows provides critical life cycle cues to macroinvertebrates and fish. (Poff, *et.al.*, 1997) A change in timing can have a significant impact on those resources. Hydrographs presented in the DEIS (Appendix H-4) *appear* to show that the Moffat Project will delay peak flows: TABLE 8 DELAYS IN PEAK FLOW ATTRIBUTABLE TO THE MOFFAT PROJECT PREFERRED ALTERNATIVE Table Number | Physical Location | Type of Year H – 4.2 | Moffat Tunnel (1) | Wet H – 4.5 | Below Denver Water Diversion from Jim Creek | Average H 4.6 | Below Denver Water Diversion from Jim Creek | Wet H – 4.12 | Fraser River near Winter Park | Wet H – 4.16 | Below Denver Water Diversion from Little Vasquez Creek | Wet H – 4.28 | St. Louis Creek near Fraser Gage | Wet H 4.32 | Fraser River below St. Louis Creek | Wet H – 4.44 | Fraser River at Granby Gage | Wet (1) Peak diversions under Alternative 1a occur later in the year than in the current scenario Source: DEIS, Appendix H, various tables listed above. However, the DEIS does not discuss or evaluate changes in timing of peak flows or consequences to the resources. c. **Environmental Consequences** There is an inextricable relationship between the natural flow regime *(Poff, 1997)* and the health of aquatic resources. Alterations of the natural flow regime attributable to the Project are likely to cause impacts to those resources. The failure to address peak flow reductions or shifting the timing of peak flows makes it impossible to properly analyze the impacts of the Moffat Project on water quality, stream morphology, aquatic life, recreation, and land use properly. **3. DEIS modeling is inadequate to evaluate impacts of increased dry year conditions.** a. **DEIS Conclusion** The DEIS reaches various conclusions with respect to impacts to flow-dependant resources without taking into account dry year conditions. Examples are included in Section II.B. and II.C.) b. **DEIS Conclusion Errors** 27	*modeled period of 2016 to 2030, sediment transport capacity will be orders of magnitude greater than available sediment supply for all but the smallest flows. Only minor amounts of localized sediment deposits are anticipated. Accordingly, the Project's peak flow reduction will not adversely affect aquatic resources. DEIS Conclusion Errors: • Conclusions contradict empirical data; four of the seven DEIS sediment transport study sites are currently showing "potential signs of aggradation." • Project impacts on peak flows and their relationship to sediment transport is ignored. • Information about the sediment supply equation used in the DEIS is missing. • The method to collect surface sediment samples is outdated and superficial. Environmental Consequences: - Excess sediment can be extremely detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm host for whirling disease. In the absence of high flushing flows, species with life stages that are sensitive to sedimentation can suffer high mortality rates.* **Response #836-100:** The presence of sediment at a site, particularly during low flows, does not mean that overall a channel is aggrading. Numerical analyses indicate that sediment supply and sediment transport capacity are closest during low flow conditions while transport capacity is much greater than supply at higher flows. Modeling results indicate that on a long-term basis, transport capacity exceeds supply, therefore over extended periods of time aggradation is not anticipated. An IHA analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify

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	DEIS predictions are based on single-year predictions that fail to identify or evaluate actual changes in surface water hydrology patterns increasing the frequency and duration of dry year conditions that could further degrade the aquatic environment. (i) **Frequency of Dry Year Conditions** The Moffat Project will increase the frequency and duration of dry year conditions. To understand the magnitude of the potential environmental impacts, the DEIS should use the actual daily Platte and Colorado Simulation Model (PACSM) output at various locations. An example of this type of analysis was completed using the same PACSM output completed for the Upper Colorado River Basin Study (*UPCO, 2003*). As a cooperating agency, Grand County made numerous requests for PACSM information; the information was not provided *(PASCM Data Requests, 2009-2010)* Using the UPCO output, an estimate of dry year frequency and duration under Alternative 1a (Moffat Project) was calculated and compared to the actual streamflow records for the Fraser River at the Winter Park stream gage. The actual streamflow records were ranked based on annual volume, and the bottom 25th percentile was assumed to be a dry year. This resulted in a 25th percentile flow volume of 7,124 acre feet per year. As shown on Table 9, out of the 45-year PACSM study period 12 years were considered to be **'dry years.' Using the UPCO** hydrologic output for the same location shows that, following completion of the Moffat Project, the number of dry years will increase from 12 to 27 years out of 45 (a 225% increase). TABLE 9: FRASER RIVER AT WINTER PARK COMPARISON OF TOTAL ANNUAL VOLUME AND FREQUENCY OF DRY YEARS Year / Actual Historical / UPCO PASCM 3 Scenario / Year / Actual Historical / UPCO PASCM 3 Scenario 1947 / 21878 / 11,653 / 1970 / 18,856 / 9,741 1948 / 15169 / 9,031 / 1971 / 23,107 / 10,655 1949 / 21,836 / 9,129 / 1972 / 9,457 / 5,216 1950 / 7,388 / 4,657 / 1973 / 21,551 / 9,209 1951 / 11,525 / 5,788 / 1974 / 13,058 / 5,686 1952 / 14,866 / 14,230 / 1975 / 11,366 / 4,905 1953 / 6,355 / 5,051 / 1976 / 6,100 / 4,513 1954 / 4,292 / 4,505 / 1977 / 5,192 / 4,649 1955 / 5,014 / 4,620 / 1978 / 8,519 / 5,494 1956 / 7,124 / 5,407 / 1979 / 13,049 / 8,749 1957 / 31,634 / 6,576 / 1980 / 16,125 / 11,192 1958 / 21,054 / 11,388 / 1981 / 4,901 / 4,830 1959 / 8,457 / 5,337 / 1982 / 7,656 / 5,299 1960 / 12,392 / 7,599 / 1983 / 31,136 / 19,451 1961 / 8,083 / 4,549 / 1984 / 34,149 / 19,140 1962 / 16,339 / 5,419 / 1985 / 9,240 / 10,237 1963 / 4,661 / 4,788 / 1986 / 12,202 / 7,494 1964 / 4,752 / 4,609 / 1987 / 10,924 / 7,155 1965 / 12,293 / 5,415 / 1988 / 9,186 / 7,159 28	the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 3.3. Methods use to collect field sediment samples are appropriate. ***Comment #836-99*** *(ID 4736)**:*** *AQUATIC LIFE – (See Section II.D) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The Project will result in, at most, "negligible" to "minor" impacts on aquatic life. DEIS Conclusion Errors: - Contrary to empirical information, the DEIS incorrectly assumes that the current condition of aquatic resources has not already been degraded. - In circumstances where a stream bed is dried up or where the Project will prolong dry-up conditions, thus completely depriving fish and microinvertebrates of water, the DEIS concludes that impacts are "minor." - Prolonged stream temperature exceedences above State standards are lethal to fish, not "minor" impacts. - Impacts to aquatic life that will be exposed to more dry-year conditions were not evaluated. - Impacts to macroinvertebrates and other fish species and on whirling disease were not evaluated. - Inaccurate surface water hydrology, water quality, stream morphology and sediment transport analyses leading to impact results that are unreliable or wrong. - Conclusions based on average monthly statistics mask potentially lethal impacts to microinvertebrates and fish that live or die*

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	TABLE 9: FRASER RIVER AT WINTER PARK COMPARISON OF TOTAL ANNUAL VOLUME AND FREQUENCY OF DRY YEARS **Year / Actual Historical / UPCO PASCM 3 Scenario / Year / Actual Historical / UPCO PASCM 3 Scenario** 1966 / 7,415 / 4,706 / 1989 / 5,812 / 4,871 1967 / 8,809 / 4,767 / 1990 / 6,049 / 4,705 1968 / 6,305 / 4,655 / 1991 / 9,976 / 6,835 1969 / 18,656 / 12,074 / / / 7,403 \# of years less than or equal to the historical 25th Percentile / 12 years / 27 years Actual Historical 25th Percentile / 7,124 Actual historical total monthly streamflow volumes are based upon Fraser River at Winter Park stream gage data available from the Colorado Division of Water Resources CDSS database. UPCO PACSM 3 Scenario total monthly streamflow volumes are based upon data from the UPCO PACSM Data Display Tool (Hydrosphere, 1/3/2002). The PACSM3 Scenario includes full build-out and incorporates the Moffat Expansion Project and Windy Gap Firming Project. Shaded cells represent years in which the total annual streamflow is less than or equal to the actual historical 25th percentile of annual flows (7,124 ac-ft). This analysis also shows that the duration and recurrence of back-to-back dry years will increase dramatically under the proposed action. Actual gage data for the PACSM hydrology period (1947-1991) shows that there have historically been a total of 4 sets of at least 2 back-to-back dry years, with the longest period being four years in a row. The UPCO results show that, following completion of the Moffat Project, the Fraser River at the Winter Park gage will have 7 sets of at least 2 back-to-back dry years, with the longest being eight years in a row. (Refer back to Table 9.) Although there are differences between the PACSM output prepared for UPCO and for the DEIS, the differences are not likely to alter the overall magnitude of the project diversions and streamflow reductions on the Fraser River. There will be significant increase in the frequency and duration of dry year conditions on the Fraser River. 29	*depending on daily stream conditions - Minimal increased concentrations in some metals can be lethal to aquatic life. - Conclusions that winter habitat is more limiting to fish population than depleted flows and that reducing peak flows is beneficial to fish habitat are contrary to current scientific understanding, including research cited in the DEIS. Environmental Consequences: - Increases in stream temperature and in streams dry-up are lethal to fish and microinvertebrates. - Extending periods of low flow may decrease water quality and sedimentation transport and increase invasive species. - Decreasing peak flows may impact channel morphology and sediment transport which support fisheries and macroinvertebrates.* **Response #836-99:** Please see the response to Comment ID 4690. Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. Methods used to collect field sediment samples are appropriate. Results of the sediment sampling are provided in FEIS Appendix E. Additional assessments including sensitivity analysis of sediment supply and sediment transport equations were completed, including additional sediment data collected by the USFS. Results are provided in FEIS Sections 4.6.3 and 5.3. Contrary to the statement in this comment, the DEIS did not assume that the Current Conditions were not already degraded in some streams. The finding of impact intensity in the DEIS was the incremental

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	(ii) **Dry Year Impact Evaluation** The DEIS recognizes that Moffat Project diversions would occur in average and wet years **and that "typically additional diversions would be greatest in wet years following dry year sequences"** *(DEIS, page 4-5)*. Yet, the DEIS does not look at the extent to which Moffat **Project's diversions following dry years will increase the incidence of dry**-year conditions in the streams. Nor does it evaluate the impacts of these increased dry conditions on aquatic life, recreation, water supply and other flow-related resources. The DEIS only estimates hydrologic changes during dry, average and wet years in isolation. It does not consider the potential for the Moffat Project to permanently alter existing hydrology over a period of years. Because of this, it is impossible to understand from the DEIS the following critical information to evaluate the impacts associated with the project: ▪ The actual estimated timing and magnitude of the diversions and changes in streamflow from day to day, month to month or year to year ▪ The extent of the greatest daily, monthly and annual diversions and reductions in streamflow in varying hydrologic conditions ▪ The extent to which the proposed project will increase the duration that the source area streamflow will be limited to only the minimum USFS bypass flows. ▪ The extent to which the proposed project will result in converting historical average years into dry years in the future, increasing both the frequency and duration of dry years. ▪ The extent to which the proposed project will result in converting historical wet years into average years. c. **Environmental Consequences.** During dry years, stresses on water quality, aquatic life, stream morphology, wastewater providers, agricultural irrigators, and recreation users are particularly acute. The DEIS does not evaluate those stresses and in turn, proposes no mitigation that would avoid the risk to the resource. 4. **"Small" flow reductions in the Fraser River and tributaries can have significant adverse effects on the aquatic environment.** a. **DEIS Conclusion** **Stream flow reductions in the Fraser River and small tributaries "will be reduced by less than 1 cfs more than 80% of the time."** . (*DEIS, page 4-39*). b. **DEIS Conclusion Errors** This conclusion is misleading because it implies that such flow reductions are insignificant. The conclusion is meaningless for two reasons: first, it does not reveal the potentially dramatic changes in flow that will occur the other 20% of the time; second, it ignores the fact that a reduction of flow of less than 1 cfs in a small tributary can have significant impacts – including the complete dry up of the stream. 30	impact of the Project, not the cumulative impact of the resource since initial settlement as implied in this comment. The FEIS has been modified in Sections 4.6.11 and 5.11 to make this more clear. Section 3.11 of the FEIS has been modified to more clearly describe the existing conditions in the streams in the Project area. FEIS Sections 3.11, 4.6.11, and 5.11 have been updated to include revised discussions of the issues including low flows and water temperatures in summer. However, exceedances of the temperature standards are not presumed to be lethal. As discussed in the FEIS, the standards are regulatory standards and are not lethal thresholds. Whirling disease was discussed in the DEIS. An expanded discussion of whirling disease is included in FEIS Sections 3.11, 4.6.11, and 5.11. FEIS Sections 3.11, 4.6.11, and 5.11 have been modified to incorporate updated information on hydrology, water quality, and stream morphology. PHABSIM was simulated using daily hydrology, not monthly hydrology. The few decisions in the DEIS and FEIS based on monthly hydrology were reasonable and appropriate and did not mask lethal flow periods on shorter time scales. Winter habitat creates a stressful period for trout in Colorado streams, and the position that winter habitat is limiting is not contrary to scientific understanding. The claims of winter habitat modeling in this comment do not warrant changing the analysis or results in the FEIS. One of the criticisms of using PHABSIM is that modeled habitat may not always reflect actual habitat use by fish. Although trout may actually use somewhat higher velocity habitat in warmer seasons and lower velocity habitat in winter, the suitability curves used in PHABSIM for the DEIS and FEIS and winter

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	(i) Examples of significant flow reductions that occur the "other" 20% of the time ▪ The DEIS projects a decrease in average monthly flow for June in the Fraser River below Winter Park of 23 cubic feet per second and concludes that these impacts are insignificant. *(DEIS, Pages 4-37-4-39, and Appendix H-7.1)*. Yet, a decrease of 23 cubic feet per second on the Fraser River represents a reduction in flow of 43% for June from the Full Use (2016) baseline *(DEIS, Appendix H-3.6)*. A decrease of 29 cfs is predicted from Current Conditions (2006), which represents a flow reduction of 49%. *(DEIS, Appendix H-1.10)*. ▪ The modeled 2 cubic feet per second decrease on McQueary Creek represents a reduction in flow of 24% from the Full Use (2016) baseline. A decrease of 3 cubic feet per second is predicted from Current Conditions (2006) which represents a flow reduction of 44%. *(DEIS, Appendix H-1.31)*. **(ii) Examples of flow reductions of 1 cfs or less that significantly dewater streams** The following are flow changes due to the Moffat Project from 2016 to 2030. These large percentages in flow reduction do not even take into account additional flow reductions that occur between Current Conditions (2006) and Full Use (2016): • Appendix H-3.4 Cub and Buck Creeks shows that flows in average years during the month of June are expected to be 2 cfs under the No Action Alternative and 1 cfs under the proposed Moffat Project). The predicted 1 cfs stream depletion results in a 52% reduction in flow. • Appendix H-3.27 - McQueary Creek shows that flows in average years during the month of July are expected to be 5 cfs under the No Action Alternative and 4 cfs under the proposed Moffat Project. The predicted 1 cfs depletion results in a 26% reduction in flow. • Appendix H-3.28 - Williams Fork River below Steelman gage shows that flows in average years during the month of August are expected to be 4 cfs under the No Action Alternative and 3 cfs under the proposed Moffat Project. The predicted 1 cfs depletion results in a 28% reduction in flow. The following are flow changes due to the Moffat Project from Current Conditions (2006) to Full Use (2016): • Appendix H-1.12 - Little Vasquez Creek shows that flows in average years during the month of July are expected to be 2 under Current Conditions and 1 cfs under the proposed Moffat Project. A 1 cfs depletion that results in a 54% reduction in flow. • Appendix H-1.7 shows that flows in May of average years will be reduced from 2 cfs under Current Conditions to 0 cfs under the proposed Moffat Project, a 93% flow reduction that will completely dewater the stream. 31	preference curves both indicate similar use of low velocity habitat in both seasons. The DEIS and the FEIS both discuss this issue and the use of winter curves in PHABSIM likely would not change model output appreciably. Therefore, the original assumption in the DEIS is correct. ***Comment #836-98*** *(ID 4735)**:*** *RECREATION – FISHING (See Section II.E.1) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: There are no fishing impacts in Grand or Summit Counties. DEIS Conclusion Errors: - Conclusion is unsupported. There is no discussion about the relationship between hydrology, water quality and water temperature to fishing. - There is no information about changes to fishing between 2006 and 2016. - Currently compromised fishing conditions due to water temperature is not discussed. - There is no information about changes to fishing in the Colorado River downstream of confluence with the Blue River. - Correlation between flows and healthy fisheries is inconsistent with scholarly information from other sources. Environmental Consequences: - Further deterioration of fisheries will decrease the quality of the fishing experience, reduce the number of anglers who represent an important segment of the summer recreation visitor market. - Loss of Gold Medal Water designation or Wild and Scenic River candidacy could a trigger an additional loss to the summer visitor market. This concern was not addressed.* **Response #836-98:** A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). The DEIS contained a discussion of water temperatures in these streams and the effects on aquatic biological resources. FEIS Sections 4.6.11 and 5.11 now contain a more detailed discussion.

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	These significant flow reductions can make the difference between a stream that can support aquatic life to one that cannot. *See* discussion in Part D of this Joint Statement and *Comment Letter from Dr. Leroy Poff (March 15, 2010)*. c. **Environmental Consequences** Streamflow reductions of the magnitude stated above have the potential to have significant adverse impacts on macroinvertebrate populations, fisheries, habitat connectivity and water quality . B. WATER QUALITY The quality of water in water bodies affected by the Project is already degraded. Additional depletions resulting from operations of the Moffat Project could further degrade water quality, and affect the ability of Wastewater Treatment Providers to meet their discharge permit obligations. **1. The Moffat Project will have significant impacts on water quality.** a. **DEIS Conclusion** The DEIS concludes that the proposed Project will have no significant impacts on water quality in the Fraser River, Williams Fork River, the Blue River and Upper Colorado River and their tributaries as a result of the Moffat Project. It predicts: ▪ **"no changes"** in water quality in the Fraser River tributaries, *(DEIS, page 4-40);* ▪ **"no changes" in water quality on the Blue River below Green Mountain Reservoir** *(DEIS, page 4-85);* ▪ **"minor" impacts on stream temperatur**es in the main stem of the Fraser River *(DEIS, page 4-42);* ▪ **"minor to negligible impacts are anticipated" to water quality between Dillon and** Green Mountain Reservoir on the Blue River (DEIS, page 4-84); ▪ **"negligible" impacts on stream temperatures** in the Colorado River below Windy Gap Reservoir and at Kremmling *(DEIS, page 4-76),* and; ▪ **"moderate" impacts to stream temperatures in Ranch Creek** *(DEIS, page 4-41)*. No other water quality impacts are identified in the DEIS. As a result, the DEIS offers inadequate mitigation to address water quality problems. b. **DEIS Conclusion Errors** The DEIS conclusions ignore existing, known water quality problems which are likely to be exacerbated by incremental Moffat Project depletions; arbitrarily dismisses admitted Project exceedences of State water quality standards - including acute (lethal) stream temperature levels, as insignificant; uses an arbitrary screening criteria that precludes evaluation of water quality problems created or exacerbated by the Project; omits evaluation of Project effects that 32	The DEIS did not evaluate the Colorado River in depth because the flow changes would be much less than 10% on an annual basis and impacts to the resources listed in this comment were unlikely. However, the FEIS has been modified to include the Colorado River as a focus reach with an expanded discussion of existing conditions and impact evaluations in Sections 3.11, 4.6.11, and 5.11. As discussed in FEIS Sections 4.6.11 and 5.11, the fisheries in the Fraser and Colorado rivers would continue to survive if the Project is implemented. The Gold Medal reaches on the Colorado River are expected to continue to merit Gold Medal status. Data presented in DEIS and FEIS Section 3.11 indicate that there has not been a decline in these fisheries in the last few decades. Impacts to the quality of the fishing experience are strongly influenced by the quality and health of the fisheries, which are addressed in DEIS Section 4.9.1. At most locations, the analysis of aquatic biological resources concluded that impacts to the health of the fishery would be minor or negligible. Therefore, impacts to the recreational experience would also be minor. FEIS Section 4.9.1 was reviewed and conclusions regarding the health of the fisheries, including the quality of fish, were considered for consistency in FEIS Section 5.15.1.2. FEIS Section 3.17.5.6 includes a description of Grand County's tourism economy, including the impacts of tourism spending. However, the description was expanded in the FEIS to further address the number of tourism-related businesses in the county. FEIS Section 3.13.5 addresses fishing on various river segments in Grand County. FEIS Section 5.19 addresses socioeconomic impacts to Grand County businesses and residents. This text was expanded for the FEIS as appropriate and applicable to provide clarification of impact conclusions.

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	can adversely affect water quality – such as reduction of cooling groundwater flows; relies on inaccurate and flawed predictions of Project flow depletions; and fails to assess degradation of water quality that will occur before Full Use (2016) and will likely be aggravated by the Project. As a result, the DEIS information cannot be relied upon to fully evaluate the adverse effects of the Project on the aquatic environment. Nor can its conclusions be relied upon to assess compliance with the Clean Water Act. **(i) Existing, Known Water Quality Problems not Identified** The DEIS fails to identify the following known water quality problems or evaluate the extent to which the Moffat Project will cause or contribute to additional degradation: ▪ Chronic copper concentrations exceed water quality standards on the Fraser River **downstream of Union Pacific's Moffat tunnel**. *(DEIS, page 4-39)* ▪ **Metals and total suspended solids contributions from the Union Pacific's M**offat Tunnel were completely overlooked in the DEIS. ▪ Exceedences of pH standards in the Fraser River ~~continue to occur~~. (TMWSD, 2005) ▪ Williams Fork Reservoir dissolved oxygen (DO) dips below the State standard in 2003, but there is no evaluation of that event in terms of the linked temperature and DO standard. Flows out of Williams Fork reservoir demonstrate low DO (4mg/L) and high combined nitrate/nitrite readings. *(DEIS, page 3-34)* ▪ Grand Lake clarity has been significantly degraded and an effort is underway to **reduce nutrients and improve the Lake's water quality and clarity. Contribution of** additional nutrients from a more concentrated Fraser River will likely exacerbate nutrient related water quality issues in Grand Lake. ▪ Summer ammonia has been an on-going problem in the Fraser River. High temperatures disassociate ammonia into its toxic form, and temperatures will increase in the Fraser River as more of the headwaters are diverted. • Exceedences of acute (lethal) stream temperature standards in Ranch Creek occurring in July and October. (WQCD Exhibit 4) • Exceedences of acute (lethal) stream temperature standards in the Colorado River (WQCD Exhibit 4). • Exceedences of chronic (MWAT) stream temperature standards in the Colorado River occurring in early July, October and November. (WQCD Exhibit 4). • Exceedences of chronic (MWAT) stream temperature standards in the Blue River, and Ranch Creek and St. Louis Creek. (WQCD Exhibit 4). ▪ Exceedences of maximum weekly average temperature or daily maximum temperature standards for the Fraser River in July and August. (WQCD Exhibit 4) 33	***Comment #836-97** (ID 4734):* *RECREATION - BOATING (See Section II.E.2) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: There is a beneficial relationship between proposed streamflow changes in days suitable for kayaking and rafting on the Colorado River, , and there is only negligible impacts to the number of days suitable for kayaking and rafting on the Blue River. DEIS Conclusion Errors: - Analyses completed as part of the Colorado Wild and Scenic Alternative Management Plan and the Windy Gap Firming Project DEIS concluded that there are adverse impacts, measured in reduced days suitable for kayaking and rafting. Environmental Consequences: - Fewer days suitable for the full range of boating opportunities on the Colorado River will adversely affect this summer visitor activity in western Grand County where the number of tourist-related options is limited.* **Response #836-97:** The most current information available at the time of the DEIS analysis was used in identifying minimum and optimum flows. In the DEIS analysis, the days for minimum and optimum flows were determined from several sources including the Upper Colorado River Basin (UPCO) study, American Whitewater, and personal interviews with commercial raft guides and private kayakers. New information in the Grand County Stream Management Plan indicates slightly different, yet consistent flow ranges. As such, the analysis was revised in FEIS Section 5.15.1.2 to reflect the difference in range of flows. The portions of the Colorado and Blue rivers within the Moffat Project area were deemed "not suitable" for listing in the NWSRS by BLM in April 2010. Nonetheless, the Upper Colorado River Stakeholder Group Conceptual Plan for a Wild and Scenic Management Alternative was reviewed and included as a consulted reference in FEIS Section 3.15.5. An analysis on the section of the Blue River below

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	(ii) **Increased Violations of State Stream Temperature Standards Dismissed as Insignificant** Even where it recognizes that operation of the Project will result in increased violation of State stream temperature standards, the DEIS arbitrarily concludes that such exceedences are **"negligible," "moderate," or "minor."** ***Ranch Creek.*** The DEIS admits increases in the daily maximum acute standard exceedences are possible (*DEIS, page 4-40*). That potential is not quantified, nor is the potential for increased chronic standards (maximum weekly average temperature) **violations analyzed. The DEIS concludes the Project's impacts to Ranch Creek are "moderate."** *(DEIS, page 4-41)*. Yet, stream temperatures that exceed daily maximum standards are presumed to be lethal to fish and a violation of the Clean Water Act. ***Mainstem of the Fraser River.*** The DEIS acknowledges a potential for increased exceedences of daily maximum acute State standards. *(DEIS, pages 4-41 and 4-42)*. Again, without even quantifying the frequency of expected exceedences or evaluating potential increased chronic standards (maximum weekly average temperature) violations, **the DEIS simply concludes the Project's imp**acts on stream temperature in the Fraser River w**ould be "minor." Again,** exceedences of daily maximum standards are presumed to be lethal to fish. ***Colorado River.*** The DEIS acknowledges a potential for increased exceedences of the maximum weekly average temperature (chronic) temperature standards downstream of Windy Gap Reservoir and at Kremmling *(DEIS, page 4-76)*. The DEIS concludes such **impacts are "negligible,"** without any quantitative analysis. *(DEIS, page 4-76)*. The Colorado River downstream of Windy Gap is designated Gold Medal trout fishery and a candidate for Wild and Scenic Rivers Act in recognition of outstanding fishing. Exceedences of chronic temperature standards leads to a reduction in size and reprod**uction of fish, which is a "significant impact."** ***Vasquez Creek.*** The DEIS acknowledges potential stream temperature impacts but **simply states that "[i]t is not known if the stream standards for temperature would be exceeded due to the increased diversions."** *(DEIS, page 4-40)*. No effort is made to either quantify the frequency of exceedences or determine whether they will result in daily maximum (fatal) or maximum weekly average temperature (chronic) violations. **The State's stream temperature standards were developed after a rigorous scient**ific process involving many stakeholders, including Denver Water. These standards were developed and adopted to protect fisheries from acute (lethal) and chronic impacts of elevated temperature. Any additional exceedences of State temperature standards implies a direct impairment of the aquatic resource and so is significant. Of particular note is the fact that Ranch Creek, the Fraser River and the Colorado River below Windy Gap will be listed by the State as impaired in 2010 (CWA 303(d) list) due to stream temperature exceedences. *See* WQCD final version of Regulation #93, March 2010. (iii) **Screening Criteria Precludes Evaluation of Adverse Effects.** 34	Green Mountain Reservoir to the confluence with the Colorado River was added to FEIS Section 5.15.1.2. ***Comment #836-92*** *(ID 4733)**:*** *LAND USE - AGRICULTURAL IMPACTS [SEE SECTION II.F.1 IN ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The DEIS does not address agricultural impacts in Grand or Summit Counties. DEIS Conclusion Errors: - Low streamflows already cause irrigation ditch operations problems for ranchers who use the Fraser and Colorado Rivers during dry and average years. - Additional streamflow reductions will exacerbate this problem. - Impacts to irrigators are serious because Denver Water owns very senior water rights that could be exercised more frequently due to the Moffat Project. Environmental Consequences: - Irrigation ditch problems and failures lead to additional costs associated with repair and can result in poor crop results which impact agricultural revenues.* **Response #836-92:** Please see the response to Comment ID 4647. ***Comment #836-4*** *(ID 4732)**:*** *LAND USE - RESORT DEVELOPMENTS (See Section II.F.2)[SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The DEIS provides no discussion of land use in Grand County. DEIS Conclusion Errors: - There are a number of signature resort developments in Grand County that inextricably rely on the Fraser River, the Colorado River and their tributaries. Environmental Consequences: - Further reductions in streamflow, deterioration in water quality and increases in water temperature will hamper the fishing experience as well as the visual and auditory enjoyment of rivers and tributaries upon which these signature resorts rely.*

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	Use of water quality screening criteria ignores potential water quality degradation caused by the Moffat Project. The DEIS *(DEIS, page 4-22)* limits its review of water quality impacts resulting from the proposed project to those identified situations where: ▪ PACSM predicts a change in stream flow of 15% or more between Full Use (2016) conditions and an analyzed alternative. ▪ The stream segment is currently exceeding water quality standards ▪ The stream segment is currently listed on the 303(d) or Monitoring and Evaluation list ▪ The stream segment has an existing total maximum daily load. For stream temperature impacts, the DEIS also qualitatively looks at streams where existing temperature conditions are near (within 1°C) of State stream temperature standards. *(DEIS, pages 4-40 to 4-42)* **This screening approach limits the DEIS's evaluation of impacts of t**he Moffat Project to situations where water quality is already a problem. It entirely disregards water quality conditions that are not a problem today but will become so due to operation of the Moffat Project in the future. It entirely disregards water quality problems that will arise in the intervening years between Existing (2006) and Full Use (2016) conditions, and would be further exacerbated by the Project. ***Impacts to small tributaries not evaluated.*** Although it is true that the greatest volume of water will be removed during runoff, the DEIS anticipates reductions in bypass flows on tributaries *(DEIS, Appendix H, Table H-1.51)* in dry years and some reductions in base flows. In addition, the DEIS *(DEIS, Appendix H 3.3, 3.8, 3.9, 3.11, 3.13, 3.15, 3.18, 3.20, 3.24-3.28)* shows flow reductions on tributary creeks without bypass flows that, while individually may be less than 0.5 cubic feet per second, nonetheless represent 20%-100% reductions in flow for those tributaries, in many cases *throughout the year*. It is during these situations when water quality problems are more likely to occur, yet they have not been evaluated. Several tributaries that currently have no bypass flow requirement are dry most of the year and will have additional water diverted out by project making them dry more months out of the year. See DEIS tables H-1.7, H-1.8, H-1.12, H-1.15, H-1.19 ***Impacts to stream temperature***. The Fraser River and most tributaries are significantly impacted now as evidenced by exceedences of State stream temperature standards protective of aquatic life. These temperature problems will get worse as more water is diverted between Existing (2006) and Full Use (2016) conditions. Then the project will make the situation even worse by diverting more water. The following example demonstrates how the screening criteria would ignore water quality degradation for a problem that is already well documented. Table 10 excerpts stream flow data in cubic feet per second from the DEIS for selected river and stream segments to demonstrate pending changes during August, September and October, critical months for fisheries that would be affected by increasing temperature. As the table shows, there will be significant flow reductions. However, because flow reductions between Full Use (2016) and Full Use w/Project (2030) will be less than 15%, the DEIS screening criteria precluded evaluation of the effect of these changes on water quality. This is in spite 35	**Response #836-4:** The Moffat Project would not result in more than negligible direct land use effects in Grand County. In terms of effects to resort developments in Grand County, the analysis of impacts to fisheries concluded that adverse effects would generally be negligible to minor. Visual effects associated with stream flow modifications were also acknowledged and determined to be minor at most locations, including the Colorado River, Blue River, and lower portions of the Fraser River. Based on this level of adverse effects on the setting and recreational opportunities, and as stated in DEIS Section 4.17, no measurable changes in tourist recreational activity would be expected. Additional analysis was conducted on water quality and stream temperature and is included in FEIS Sections 4.6.2 and 5.2. ***Comment #836-95*** *(ID 4731)**:*** *VISUAL RESOURCES (See Section II.G) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: There is an adverse impact on the Fraser River from a visual perspective. Impacts on the Williams Fork, Blue and Colorado rivers are minor, limited, or "below perceptible change." DEIS Conclusion Errors: - Conclusions are confined to remarks about streamflow; they exclude water clarity or related riparian environment. - Excludes consideration of impacts on Grand Lake. - Excludes consideration of cumulative impact to recognized Wild and Scenic Rivers Act "outstandingly remarkable" scenic values in the Colorado River downstream of confluence with the Blue. - Streamflow reductions between 2006 and 2016 were not evaluated. - Conclusions are based on one study of questionable comparability. Environmental Consequences: - Further reductions in the visual resources with high visitor visibility may decrease visitation to Grand County and Summit County. To both Counties, tourism is a "basic sector" industry. -*

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of the fact that the State has identified these segments as having existing temperature problems and future depletions will reduce flows in some cases by more than 50% increasing stream temperature in 2016. These problems would be compounded by the Moffat Project.

TABLE 10: STREAMFLOW DATA
SELECTED SEGMENTS OF THE FRASER RIVER, COLORADO RIVER, RANCH CREEK AND ST. LOUIS CREEK
(MEASURED IN CUBIC FEET PER SECOND)

Type of Year	August			September			October		
	2006 Existing	2016 Full Use	2030 Alt 1a	2006 Existing	2016 Full Use	2030 Alt 1a	2006 Existing	2016 Full Use	2030 Alt 1a
Fraser River H-1.20									
Avg	36	26(27%)	24(9%)	19	12(37%)	12(1%)	14	7(49%)	7(3%)
Dry	24	14(43%)	14(0%)	14	6(54%)	6(0%)	10	3(65%)	3(0%)
Wet	73	58(20%)	54(7%)	25	17(33%)	16(7%)	22	15(31%)	15(0%)
Colorado River H-1.34									
Avg	167	149(11%)	146(2%)	98	96(2%)	94(2%)	99	95(4%)	94(1%)
Dry	101	98(4%)	98(0%)	68	68(0%)	68(0%)	75	77(+3%)	77(0%)
Wet	411	369(10%)	364(1%)	163	142(13%)	140(1%)	182	155(15%)	155(0%)
Ranch Creek H-1.21									
Avg	6	6(1%)	6(6%)	4	4(0%)	4(0%)	5	5(0%)	5(0%)
Dry	5	5(0%)	5(0%)	4	4(0%)	4(0%)	5	5(0%)	5(0%)
Wet	9	9(3%)	9(2%)	5	5(4%)	5(2%)	5	5(0%)	5(0%)
St Louis Creek H-1.18									
Avg	21	21(2%)	20(6%)	11	11(1%)	11(%)	9	9(1%)	8(%)
Dry	14	13(6%)	13(%)	9	9(2%)	9(%)	8	8(0%)	8(%)
Wet	43	42(3%)	40(%)	16	15(8%)	14(%)	12	12(0%)	12(%)

Source: DEIS, Appendix H
% = percent of Existing for Full Use; percent of Full Use for Alt 1a

As the table shows, the DEIS screening criteria precluded evaluation of the extent to which the Moffat Project will further degrade known acute (lethal) stream temperature problems in the Fraser River that occur in July and in Ranch Creek during July and October. The **screening criteria also precluded evaluation of the Project's effect on known chronic problems** in the Colorado River in early July and in October.

(iv) **Groundwater Recharge Flows**

Impacts due to reduction of cooling groundwater recharge flows are ignored. The Fraser **River watershed is encompassed in Denver Water's horseshoe shaped collection system that** intercepts surface runoff and tributary flows from between 10,000 feet and 9,300 feet before that water reaches the river or infiltrates to groundwater. Recent studies have shown the role of groundwater in providing for streamflows in small headwater catchments is more significant than previously thought *(Lui, et.al., 2004)*. USGS has indicated that groundwater temperature in the Fraser River alluvium is consistently below 10 degrees centigrade, with the lowest temperature recorded at 4 degrees centigrade *(Bauche & Bails, 2004)*.

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It may also affect Congress' ability to opt to designate portions of the Colorado River under the Wild and Scenic Rivers Act due to its scenic value.

Response #836-95:
The fluctuation of river water levels, both diurnally and seasonally, is a widely accepted consequence of natural hydrologic cycles, reservoir management, irrigation practices, and diversions for other purposes that have occurred for more than a century in Colorado. Although relatively little academic research has been completed on the relationship between stream flows and aesthetics, available research indicates that changes during periods of low flows (which would not be changed by the Moffat Project) are the most sensitive to viewers and that peak flows are not necessarily viewed as having a higher visual quality. Additional studies on this relationship have been reviewed and incorporated in FEIS Section 5.17.1.2.

The DEIS analysis examined flows over the course of the full 45 years of record. This same analysis has been repeated in FEIS Section 5.17.1.2, but compares Current Conditions to the Proposed Action using flows over the full 45 years of record. A discussion has also been included in FEIS 3.1 regarding native flow conditions and Current Conditions.

Impacts to the visual aesthetics from impacts to the associated riparian vegetation communities was addressed in Section 4.15.1.2 of the DEIS.

DEIS Section 4.1 has been further reviewed and any potential impacts to visual aesthetics due to changes in water clarity have been addressed in FEIS Section 5.17.1.2.

Impacts to the economy of the area are addressed in the Draft EIS Section 4.17. Impacts to Wild and Scenic River designation eligibility was addressed in

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	Reducing recharge to groundwater in the high altitude reaches by intercepting runoff with the Moffat Collection System will reduce groundwater recharge into the river throughout the year. In late summer, when groundwater recharge to the river should account for the majority of stream flow reductions in cold groundwater recharge will reduce the moderating effect of that recharge on stream temperatures, and will contribute to increased temperatures in the Fraser River and tributaries. These impacts were not evaluated. (v) **Fugitive Dust**. Water quality impacts due to fugitive dust are ignored. The DEIS fails to recognize the potential for increased fugitive dust from reduced summer levels for Dillon Reservoir, or for Williams Fork Reservoir. For instance, one of the largest contributors of phosphorus loading to Dillon Reservoir is associated with precipitation because precipitation carries phosphorus bound to fine particulate matter into the reservoir. The DEIS indicates the end of September Dillon reservoir elevation would be reduced by 3 feet on average, with a maximum monthly reduction of 16 feet *(DEIS, page 4-28)*. Increased shoreline exposure will result in an increase in fugitive dust. Increased fugitive dust would result in increased phosphorus loading through precipitation as the concentration of particulates in the air increases. Total phosphorus loading is regulated under the Dillon Reservoir Control Regulation (5 CCR 1002-71). Figures 1 and 2 (attached) show how the reduction in reservoir level translates into increased exposed surface area with the potential for dust generation. This impact was seen in 2002 during the drought when there was a significant increase in shoreline exposure. The DEIS does recognize that the Eagles Nest Wilderness Area is managed under the Clean Air Act as a Class I area suitable for the most stringent level of protection (page 3-262). Dillon Reservoir literally abuts Eagles Nest Wilderness Area and so an increase in fugitive dust associated with reduced reservoir levels in the summer poses a threat to air quality that is not considered. (vi) **Full Use (2016) Future Baseline Precludes Accurate Assessment of Impacts** Arbitrary use of **2016 "future"** baseline precludes accurate assessment of water quality impacts. **The DEIS's conclusions regarding the mag**nitude of impacts of the Moffat Project on stream temperatures due to operation of the Project are not based on a comparison of changes from existing conditions. Rather, they are based on changes between Full Use (2016) conditions and Moffat Project (2030) conditions. As such, the DEIS entirely disregards water quality deterioration that will occur between existing conditions and 2016, after Denver Water has increased its diversions and the Windy Gap Firming Project comes on line. This problem is compounded by the fact that **the DEIS's analysis artificially front**-loads the magnitude of flow depletions in the 2006 to 2016 period, masking the significance of impacts that will actually occur during the artificially selected period of 2016 to 2030. Importantly, the DEIS selective use of baselines understates the impacts of the Project. On the one hand, the DEIS selects a *Full Use (2016)* baseline to assess estimated *flow reductions* associated with the Project that will result in increased stream temperature impacts. Because the majority of depletions are presumed to occur before Full Use (2016), most of the impacts are assumed to have occurred by that time and the true impacts of the Project appear to be 37	the DEIS and has been further considered in FEIS Section 5.17.1.2. ***Comment #836-74*** *(ID 4730)**:*** *CULTURAL RESOURCES (See Section II.H) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.] DEIS Conclusion: The DEIS excludes all mention of cultural resources in Grand County. DEIS Conclusion Errors: - Grand County has a rich and diverse cultural history that is directly linked with the water resources of the Fraser, Williams Fort and Colorado Rivers. Environmental Consequences: - Further compromise to Grand County's water resources will adversely impact its cultural resources.* **Response #836-74:** An investigation of cultural resources in Grand County was not undertaken because no physical alterations of existing conditions are proposed in Grand County. The analysis shows that the changes in stream flow due to the action alternatives would result in little or no impacts to cultural resources; therefore, this information was not evaluated in the EIS. URS Corporation (URS), the Corps' consultant, invited Mr. Don Worster of the Grand County Historical Association to attend an interested parties meeting in November 2005. Mr. Worster declined to attend this meeting after a telephone conversation with URS on November 4, 2005. During that conversation, URS informed Mr. Worster that there were no new facilities planned in Grand County. ***Comment #836-3*** *(ID 4729)**:*** *Cumulative Impacts The DEIS fails to evaluate cumulative impacts of past, current and reasonably foreseeable future conditions in aquatic resources, recreation, land use, visual resources, cultural resources, the mountain pine beetle infestation, or climate change and global warming. By incorrectly*

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	minimized. On the other hand, to evaluate *water quality impacts* of the project, the DEIS adopts as baseline existing water quality, including stream temperature, rather than projected water quality in 2016. Because existing temperature conditions are better than they will be in 2016, after the proposed additional diversions by Denver Water and the Windy Gap Firming **Project comes on line, the Project's impacts are, once again, artificially minimized. The DEIS** selective use of baselines is unjustified and reflects a bias in favor of a finding of no impacts. Even if most impacts on stream temperatures were to occur between Existing (2006) and Full Use (2016) conditions, operation of the Project is likely to increase the frequency with which flow conditions persist, leading to increased stream temperature problems. For example, the DEIS concludes that the Project will have no impacts on stream temperatures in St. Louis Creek because the daily maximum stream temperature standard is currently exceeded when flows are at 13 cubic feet per second, and flows after 2016 will not drop below 13 cubic feet per second more often than they would in 2016. (*DEIS, page 4-41)*. However, even if flows do not drop below 13 cubic feet per second, an increase in frequency of lower flows due to operation of the Project can lead to violations of chronic maximum weekly average temperature standards. There are readily available stream temperature models that could provide a patina of analysis instead of limiting temperature evaluations to qualitative discussions. One example is the Stream Segment Temperature Model used in the Windy Gap Firming Process DEIS. (vii) **Forecasts** The surface water hydrology analysis makes water quality predictions unreliable. The DEIS water quality impacts analysis relies on projected depletions derived from the surface water hydrology impacts analysis. As discussed in Section II.A., the hydrology analysis is wrong. In particular, the DEIS does not evaluate impacts to water quality during dry years because the assumption is made that the Moffat Project will not divert during dry years. *(DEIS, pages 4-41 and 4-42)*. Yet, as discussed in Section II.A., the Moffat Project will likely increase the frequency and duration of dry year conditions. c. **Environmental Consequences** The Fraser River and tributaries and the Colorado River below Windy Gap are already experiencing significant water quality issues due to ongoing depletions that take the majority of their native flows. Degraded water quality, in particular, elevated stream temperatures, low dissolved oxygen and higher metals and TDS can have significant adverse effects on macroinvertebrates and fish. Grand Lake has also been significantly compromised. The Moffat Project is likely to exacerbate these problems and cause additional water quality impacts. **2. The DEIS does not properly identify impacts to waste water treatment plants.** a. **DEIS Conclusion** 38	*incorporating the proposed Windy Gap Firming Project into the 2016 "baseline" figures, all incremental impacts associated with this highly significant project have been dismissed. Impacts of historical and existing diversions on aquatic life are ignored. Impacts of reasonably foreseeable events – including increased future diversions in the Colorado River downstream of its confluence with the Blue River, climate change and beetle kill, are not evaluated.* **Response #836-3:** DEIS Sections 5.6.14, 5.6.16, and 5.6.17 describe the cumulative effects associated with Land Use, Cultural, and Socioeconomic resources, respectively. Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use of the System with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use of the System with a Project Alternative (2032). Windy Gap The DEIS includes the WGFP as part of the direct impacts analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The WGFP is also included in PACSM for cumulative effects analysis. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related

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	The DEIS generally concludes that operation of the Moffat Project may result in negligible impacts to wastewater treatment providers and their discharge permits. The DEIS also indicates negligible influence of wastewater on the Fraser *(DEIS, page 4-45)* and no impact to wastewater treatment plant discharge permits *(DEIS, page 4-51)* in the Fraser River. In the Blue River watershed the DEIS predicts no change to Blue River *(DEIS, page 4-84)* or Dillon Reservoir *(DEIS, page 4-83)* water quality. Negligible to minor impacts to wastewater treatment plants *(DEIS, page 4-84)* and discharge permits *(DEIS, page 4-85)* are identified, although there is mention of more stringent permit limits for ammonia that may result *(DEIS, page 4-83)*. **b. DEIS Conclusion Errors** The DEIS conclusions are based on a flawed evaluation of anticipated changes in surface **water hydrology, rely on inaccurate data and arbitrary "screening" criteria that precludes** assessment of significant impacts, and arrives at conclusions regarding the significance of impacts that are entirely arbitrary. **(i) Screening Criteria** Screening criteria artificially exclude wastewater treatment plants. The DEIS considers impacts to wastewater treatment plants only in the following situations *(DEIS, page 4-25)*: ▪ There is a projected change in stream flow such that flows will be less than the current chronic or acute low flow value in the wastewater treatment plan**'s discharge permit.** ▪ Where projected changes in stream flow are greater than 15% and there is an increase in the percent of effluent comprising the stream flow of 15% or more between Full Use of Existing System and an Alternative. These criteria fail to recognize situations that may not be problematic now that do not meet the screening criteria, but will become real problems as a result of additional diversions in the future. In addition there are circumstances that the DEIS fails to even consider in its limited approach, such as mixing zones or regulatory criteria tied to flows that trigger additional costs to utilities. The DEIS fails to consider the permit for the Hot Sulphur Springs wastewater treatment plant. **(ii) Flow Depletions** Flow depletions in the Fraser and Blue Rivers and fluctuations in Dillon Reservoir will impact wastewater treatment plants. The following are examples of those impacts to wastewater treatment plants in the Fraser and Blue Rivers and Dillon Reservoir: ▪ Chronic copper concentrations in the Fraser River exceed water quality standards and will increase with the reduction in dilution flows associated with additional diversions from the Moffat Project. This may result in copper limits in wastewater treatment plant discharge permits. These limits will be based on the diluting capability of the Fraser River at low flow. Treatment processes to remove metals would be a significant expense. 39	resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2 for a discussion of this analysis. Past Actions The CEQ interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects. The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology.

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	▪ Average flows considered by the DEIS are irrelevant to wastewater treatment plant discharge permits. CDPHE utilizes the statistical 1-day in 3-year, or 30-day low flow with 1 in 3-year recurrence interval low flows for calculating permit limits (acute and chronic, respectively). For example, the DEIS identifies average monthly releases from Dillon Reservoir in Appendix H, Table H-3.35. In this table monthly average releases do not go below 50 cubic feet per second and the DEIS text implies that Denver Water does not intend to reduce flows below that 50 cubic feet per second level although they have the ability to do so in some circumstances *(DEIS, page 4-81)*. Monthly averages may include flows below that value. When releases below Dillon Reservoir drop below 50 cubic feet per second it has the potential for significant **impacts to the Silverthorne Joint Sewer Authority's Blue River** Wastewater Treatment Plant **("JSA"). The JSA's discharge permit limits are tied by the CDPHE to the 50** cubic feet per second release from Dillon Reservoir and intervening inflows. Any reduction from the 50 cubic feet per second release even for a few days could be a problem, in spite of the fact that the monthly average release is still 50 cubic feet per second. For example, the JSA estimates that a flow of 35 cubic feet per second for three days would result in permit changes mandating approximately $5 million in capital costs for new metals removal processes, plus operation and maintenance costs into perpetuity. The DEIS did not even consider the potential impact of increased metals concentrations on the JSA. ▪ The DEIS screens analysis of impacts to wastewater treatment facilities to those where the proportion of effluent to low flow in the receiving water increases by 15% or more. This approach fails to recognize impacts that result from loss of dilution that does not meet this criterion. For example, EPA Region 8 Guidance for Whole Effluent Toxicity testing (August 1997) mandates additional bio-monitoring in situations where the ratio of effluent to stream flow dilution is greater than 10%. This may be the case for the JSA, Winter Park Water and Sanitation District and the Fraser Sanitation District as a result of reduced flows in the Blue and Fraser Rivers and will require substantial additional costs to these entities. ▪ The only wastewater treatment plans evaluated in the Blue River watershed is the JSA. There are three major municipal discharges into Dillon Reservoir. These facilities could be affected by the increasingly fluctuating reservoir level associated with the Project. Dischargers to Dillon Reservoir must meet permit limits at the edge of their mixing zone. Increasingly fluctuating reservoir levels make the definition of this mixing zone ambiguous. In order stay in compliance with their permit limits dischargers may be required to modify their facilities to utilize the mixing zone, or to upgrade their treatment plants to be capable of treating to a level that complies with permit limits at the end of pipe. For example, the Snake River Sewer Treatment Plant discharges into the Snake River arm of Dillon Reservoir. If this situation were to impact the treatment plant, they have estimated that it would cost $400,000 to $1.5 million to extend their discharge pipe out ½ to 2 miles into the reservoir to chase their mixing zone. Their other alternative would be to construct metals removal facilities with an estimated cost in 2004 of over $14 million in capital improvements plus annual operations and maintenance costs. 40	The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows diverted by Denver Water. This allows the reader to compare natural flows with past diversions at each of Denver Water's diversions locations modeled in PACSM. Pine Beetle Potential long-term effects of the pine beetle are many; however, the Moffat Project does not influence or impact the pine beetle epidemic. Impacts from the pine beetle on sediment supply are unknown. DEIS Section 4.1 (FEIS Section 5.1) under the subheading Sediment Supply explains in a qualitative means how pine beetle could impact river systems. Additional water quality analysis was also performed on the Fraser River and Three Lakes related to nutrients (FEIS Sections 4.6.2 and 5.2). Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in the FEIS (Section 5.7). In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership accelerates and expands the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest

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	▪ Because of the **screening approach employed, impacts to Hot Sulphur Springs'** wastewater treatment plant were not considered. The Town of Hot Sulphur Springs is already having difficulty meeting their permit requirements during low flow months due to ammonia and Biological Oxygen Demand. The Town uses a lagoon system and they are concern that reduced flows in the Colorado River, combined with increased incoming nutrients and temperatures, will result in additional violations which in the short term will trigger additional monitoring requirements at additional cost, and over the long term require construction of a new wastewater treatment plant. c. **Environmental Consequences** Project-related water quality impacts may exceed State stream standards and discharge permit mandates. Local wastewater treatment plant dischargers may be required to pay for increased pollutant removal even when the Moffat Project caused of the problem. C. STREAM MORPHOLOGY AND FUNCTION **"Streamflow, which is strongly correlated with many critic**al physicochemical characteristics of rivers, such as water temperature, channel morphology, and habitat diversity, can be **considered a 'master variable' that limits the distribution and abundance of riverine species"** *(Poff et al., 1997)*. The five critical components of the natural flow regime are magnitude, frequency, duration, timing and rate of change of streamflow. Human alteration of the natural flow regime changes the pattern of natural hydrologic variation and this disruption alters geomorphic features that constitute habitat for aquatic and riparian species. The DEIS recognizes the importance of accurately predicting changes in channel morphology **and function to evaluate the Project's impacts to fish and invertebrates.** *(DEIS, page 4-307)* However, t**he DEIS's stream morphology and sediment transport analysis is fundamentally** flawed. Therefore, its conclusions regarding impacts of the Project on aquatic resources are groundless. 1. **The DEIS incorrectly concludes that the Moffat Project will not have an impact on sedimentation.** a. **DEIS Conclusion** Decreases in peak flows due to the Moffat Project will result in decreases in sediment transport capacity along the Fraser River, St. Louis Creek, Ranch Creek, Williams Fork River, Blue River and the Colorado River. However, for the range of flows expected, sediment transport capacity exceeds available sediment supply and, for all but the smallest flows, sediment transport capacity transfer capacity is orders of magnitude greater than available sediment supply. Therefore, only minor amounts of localized sediment deposition are anticipated. *(DEIS, page 4-9)* b. **DEIS Conclusion Errors** 41	thinning and other wildfire fuels reduction projects would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Climate Change Please see the response to Comment 4663 with regards to climate change. ***Comment #836-88*** *(ID 4728)**:*** *MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT The DEIS fails to provide adequate bases for the issuance of a Clean Water Act Section 404 permit. As a result, before any such permit is issued, a new or supplemental DEIS must be prepared. In the alternative, terms and conditions must be imposed that adequately address the Project's identified impacts and that provide a fail-safe mechanism to address potential impacts that have not been identified due to absence of critical information. Potential mitigation terms and conditions are suggested at the end of this submittal.* **Response #836-88:** Per 40 CFR 1502.9(c)(1), since the Corps will not make substantial changes to the Proposed Action that are relevant to environmental concerns, and there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts, a supplemental draft document will not be prepared for the Moffat Project. ***Comment #836-94*** *(ID 4727)**:*** *DEIS FINDINGS BY RESOURCE CATEGORY A. SURFACE WATER HYDROLOGY The surface water hydrology impacts analysis provides the foundation for the DEIS evaluation of the Moffat Project's potential impacts to the natural and human environment. Modeled, predicted changes in surface*

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	The DEIS conclusion is contradicted by empirical data that shows that sediment accumulation is already a problem in the Fraser River, Ranch Creek, and the Colorado River and by modeling that shows that recommended flushing flows will not be met. In addition, the DEIS relies on flawed predictions of peak flow reductions due to the Project and inappropriate sediment transport equations. (i) **Empirical Data** The conclusion that sediment transport capacity is greater than sediment load is not supported by empirical field studies which indicate that sediments are currently accumulating sediment under current hydrologic conditions. (*DEIS Table 3.1-19, page 3-72)* Table 3.1-19 shows **that four of the seven DEIS sediment transport study sites are currently indicating "potential signs of aggradation". Aggradation occurs in areas where the supply of sediment is greater** than the amount of material that the system is able to transport. Contrary to the sediment transport study findings, this observation would suggest that the current flow regime is insufficient to transport the existing sediment load. Several of the affected west slope streams, including the Fraser River and Colorado River have sand deposits and organic material on cobbles. Additional depletions under the Full Use (2016) and Moffat Project (2030) scenarios will only exacerbate this problem. With regard to the sediment discussion on the Fraser River, the DEIS concludes that **"sediment transport capacity for the Proposed Action remains orders of magnitude greater than sediment supply"** *(DEIS, page 4-52)* **and that "the system is sediment**-limited and the morphology of **the channel is not expected to be impacted by flow reductions" (***Page 4-53*). This conclusion is contrary to the information presented in Table 3.1-19 of the DEIS, where **"potential signs of aggradation" were observed at four of the seven study sites. If** sedimentation is already occurring under the existing (2006) flow regime, the problem will likely be exacerbated under a more depleted flow regime (2016 or 2030) with less power to transport sediment. The DEIS draws similar conclusions on the Williams Fork River finding that peak flows will be reduced and that less sediment will be transported but that transport capacity is greater than sediment supply. (*DEIS, pages 4-69 to 4-73)* Once again, this conclusion is contrary to the information presented previously in Table 3.1-**19 where "potential signs of aggradation" were** observed at four of the seven study sites and additional depletions will likely exacerbate the existing condition. (ii) **Flushing Flow Field Studies** DEIS ignores field studies showing need for flushing flows. An analysis conducted under Phase 3B of the Grand County Stream Management Plan provides estimates of flushing flows (See Table 11). TABLE 11. FLUSHING FLOW ESTIMATES (2008) | Site | 2008 3-Day Peak (cfs) | Flushing Flow (cfs) | Riffle d50 (mm) | Mean 1 dmax (mm) | RSI | | F-3 - Fraser River at Winter | 100 | 100-175 | 75 | 170 | 90 | 42	*water hydrology are used to evaluate impacts on water quality, stream morphology and function, aquatic resources, recreation, and other flow-dependant resources on the west slope. Fundamental flaws and inaccuracies in the DEIS hydrology analysis results in fundamental flaws in the conclusions regarding impacts to these flow-dependant resources as described below 1. The DEIS analysis understates the scope and magnitude of depletions attributable to operation of the Moffat Project. a. DEIS Conclusions The DEIS predicts specific flow changes in the Fraser River and tributaries, Williams Fork River and tributaries, the Blue River, and in the Colorado River below its confluence with the Fraser and Williams Fork River. These predictions are, in turn, used to evaluate the impacts the Project will have on water quality, stream morphology and function, aquatic resources, water rights, wastewater treatment plant operation, and recreation. b. DEIS Conclusion Errors The DEIS under-states the magnitude of the Moffat Project's depletions. Its predictions of surface water hydrology are wrong because: using 2016 as a baseline, it fails to show the changes in stream flows from "existing conditions" (2006) to future conditions (2030) that can have significant impacts on the environment; predictions are based on modeled data that is inconsistent with actual data; it uses an arbitrary future baseline that artificially "frontloads" demands before 2016; it ignores significant stream reaches; it uses a study period that ended nearly 20 years ago; it uses annual and monthly averages to estimate stream flow changes that affect aquatic resources on a daily basis.* **Response #836-94:** Please see the response to Comment ID 4743 regarding comparisons made to historical Moffat Tunnel diversions and Fraser River basin streamflows shown in Table 3 of the Joint Rebuttal Report.

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		Regarding use of Full Use of the Existing System as the baseline condition. Please see the response to Comment ID 4668. Regarding stream reaches included in the study area, please see the response to Comment ID 4723. Additional stream morphological assessments were completed, including evaluations and modeling of new sites on the Fraser River, Colorado River, Blue River, Jim Creek and Vasquez Creek. Regarding "frontloading" demands before 2016, please see the response to Comment ID 4724. Regarding the study period, please see the responses to Comment IDs 4743 and 4722. Regarding the use of average statistics, please see the response to Comment ID 4721. ***Comment #836-93*** *(ID 4726)**:*** *2016 "Full Use of Existing System" as Baseline Using 2016 "Full Use Existing System" as the baseline masks the true impacts to stream flows on the West Slope because it ignores impacts that occur between existing conditions and Project diversions and are aggravated by the additional Moffat Project diversions. The DEIS provides no rational basis for this approach. Using a 2016 baseline cannot display the delta, i.e., the change in stream conditions between existing (2006) conditions and 2030. This hypothetical baseline is meaningless and misleading as an indicator of the significance of the impacts of the proposed project because it is not a statement of existing conditions. The Full Use Existing System scenario reflects operation of Denver Water's existing system in 2016 without a Moffat Project online, but includes new projects, changes in existing projects, increases in demand levels and new demands, and significantly,*

Park Water & San District					
F-6 – Fraser at Consolidated WWTP	784	250 – 360	80	117	77
F-9 – Fraser at Granby Ranch	1,167	250 – 460	68	121	92
RC1	84	130	65	148	97
RC2	Unknown	200	35	120	99
F-VC Vasquez Creek	203	80 - 110	100	130	64
F-StL – St. Louis Creek	257	50 - 180	82	113	72
Source: Grand County Stream Management Plan, Phase 3B					

The DEIS fails to analyze with what frequency flushing flows will be attained after the project comes on line.

Absent the appropriate analysis in the DEIS, the UPCO Tool was used to estimate changes in the frequency of flushing flows under the Moffat Project. The UPCO Tool was used to calculate the number of years that the upper value of the recommended flushing flow range at the Fraser River at Winter Park location (175 cubic feet per second) will be satisfied under the DEIS preferred alternative. Table 12 compares the frequency of future flushing flows to the *actual* number of years that the same flow has been met historically. As shown in Table 12, the recommended flushing flow has historically been met in 44% of the years (20 out of 45 years). Based on the UPCO output, the frequency of flushing flows will decrease to 36% of years (16 out of 45 years) under the proposed Moffat Project. Not only does the number of years that satisfy the flushing flow recommendation decrease under the preferred alternative, but the longest duration between the recommended flushing flows increases from 5 years to 9 years. Increases in duration between flushing flows have the potential to impact aquatic communities adversely.

TABLE 12: FRASER RIVER AT WINTER PARK
YEARS THAT SATISFY THE GRAND COUNTY STREAM MANAGEMENT PLAN ENVIRONMENTAL FLUSHING FLOWS
ACTUAL HISTORICAL AND MODELED FUTURE (PROPOSED MOFFAT ALTERNATIVE 1A)

Year	Actual Historical	Modeled Future	Year	Actual Historical	Modeled Future
1947	1	1	1970	1	0
1948	1	1	1971	1	1
1949	1	1	1972	0	0
1950	0	0	1973	1	1
1951	1	0	1974	1	0
1952	1	1	1975	0	0
1953	0	0	1976	0	0
1954	0	0	1977	0	0
1955	0	0	1978	0	0
1956	0	0	1979	1	1
1957	1	0	1980	1	1
1958	1	1	1981	0	0
1959	0	0	1982	0	0
1960	1	1	1983	1	1
1961	0	0	1984	1	1
1962	0	0	1985	0	1
1963	0	0	1986	1	1

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		the proposed Windy Gap Firming Project is on line. The impacts of these increased depletions are not evaluated. (DEIS, Appendix H, Table H-1.2) The two examples that follow illustrate how the increase in diversions are understated by using 2016 as a "baseline" instead of 2006 existing conditions. At the Colorado River below Windy Gap. Average annual flows in the Colorado River below Windy Gap under the Proposed Action are predicted to be 126,767 acre feet, a decline of 7,918 acre feet or 6% compared to 2016 "Full Use" "baseline" conditions. (DEIS Appendix H, Table H-7.1) However, compared to 2006 existing conditions, the decrease in stream flow would be 28,886 acre feet or 18%. [See TABLE 1: AVERAGE ANNUAL FLOWS – COLORADO RIVER BELOW WINDY GAP DIVERSION "EXISTING CONDITIONS", 2016 FULL USE CONDITIONS AND 2030 PROPOSED ALTERNATIVE in Source File.] At the Moffat Tunnel. A similar under-statement in diversion occurs at the Moffat Tunnel. The DEIS reports a 13% increase in diversion at the Moffat Tunnel between the 2030 Proposed Alternative and 2016 Full Use "baseline" conditions. However, when comparing the 2030 Proposed Alternative diversion with an annual average of actual historic diversions, there would be a 38% increase in diversion at the Moffat Tunnel. The top portion of the table below taken from the DEIS (DEIS, Table H-7.1) The bottom portion of the table compares actual historic diversion data with 2030 conditions. [See TABLE 2: AVERAGE ANNUAL DIVERSION AT THE MOFFAT TUNNEL: EXISTING CONDITIONS, 2016 FULL USE CONDITIONS AND 2030 PROPOSED ALTERNATIVE in Source File.] **Response #836-93:** Regarding the use of Full Use of the Existing System as the baseline condition, please see the response to Comment ID 4668.

1964	0	0	1987	0	0
1965	1	0	1988	0	0
1966	0	0	1989	0	0
1967	0	0	1990	0	0
1968	0	0	1991	1	1
1969	1	1			
Percent of Years Flushing Flow Recommendation is Met				44%	36%
Longest Duration between Flushing Flows				5 Years	9 Years

Notes: Actual historical data is based upon streamflows measured at the Fraser River at Winter Park stream gage. Modeled Full Use Existing is based upon UPCO PACSM Data Tool (January 2, 2002) and assumes full use of Denver Waters's existing system. Future modeled data is based upon UPCO PACSM Data Tool (January 2002) and assumes full build-out on the East and West Slope, the Moffat Expansion Project preferred alternative, and the Windy Gap Firming Project. Maximum flushing flow recommendations are based upon recommendations for Reach F3 in the Grand County Stream Management Plan and are equal to 175 cfs for 3 consecutive days, 1 in 2 years. A value of 1 indicates that the flushing flow recommendation was satisfied in that year. All flushing flows occur from May-July.

(iii) **Peak Flow Impacts**

DEIS does not evaluate the Moffat **Project's impacts** on peak flows to morphology. As discussed in Section II.A., **the DEIS's analysis of surface water hydrology changes anticipated** from operation of the Moffat Project is fundamentally flawed. Of particular note is the **DEIS's failure to adequately evaluate the Project's impacts on the magnitude, frequency and** timing of peak flows, which have a significant effect on stream function, including sediment **transport. The DEIS's evaluation of potential impacts on the streams' ab**ility to transport sediment relies on that analysis **to draw its conclusions regarding the Project's impacts on** sediment transport. As a result, those conclusions are unfounded.

The DEIS does not include any detailed sediment transport modeling for the Blue River which would allow comparison to the expected impacts of the Moffat Project. Instead, the DEIS purports to rely on information developed as part of the Two Forks EIS in 1988. Such outdated information and qualitative analysis are insufficient to conclude that there will be no notable impacts to channel morphology.

(iv) **Sediment Supply Equations**

The sediment supply equations are wrong. Sediment supply equations used in the DEIS were developed in 1986 (24 years ago) for the South Platte River *(ERC 2006, p11)*. The report prepared for the DEIS by Environmental Resource Consultants *(ERC, 2006, page 13)* recommended that a sensitivity analysis to evaluate their applicability to the west slope streams be performed. However, such sensitivity analysis does not appear to have been performed.

The DEIS repeatedly indicates that "data can be extrapolated from a channel where information exists to a channel where less information is available if they both fall in to the **same general classification."** *(ERC, 2006; DEIS page 3-66)*. However, there is no indication **either from the DEIS's analysis or from empirical data that the sediment supply equation used** in the DEIS is appropriately applied in the Fraser and Williams Fork basins.

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	The "variation of the Wolman pebble count method" *(DEIS, page 3-68)* used to collect surface sediment samples is outdated and superficial. Results from this exercise are repeatedly said to be published in DEIS Appendix E-4 *(DEIS, Section 3.1.6)*, but they are not. A more detailed analysis of these and other deficiencies with the methodology and assumptions used in the DEIS are provided by Professor Brian Bledsoe in his comments on the DEIS. *(Bledsoe, 2010)* c. **Environmental Consequences** Peak flows play an important role in cleaning sediments from stream beds. Excess sediment can be detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm (host for whirling disease). In the absence of high flushing flows, species with life stages that are sensitive to sedimentation, can suffer high mortality rates. **2. The DEIS incorrectly evaluates impacts of reduced peak flows due to the Moffat Project on stream morphology.** a. **DEIS conclusion:** The DEIS concludes that peak flow frequency would generally reduce high flow periods and therefore *reduce flooding hazard*. (*DEIS, page 4-21*). b. **DEIS Conclusion Errors:** The DEIS fails to analyze the negative impacts of the significant reduction of high flow periods on aspects of stream morphology other than floodplains. c. **Environmental Consequences:** The predicted reduction in the frequency of peak flows will reduce the number of years when flushing flows will be available, which, as described in Section C.1., above, maintain the integrity of the stream channel. D. AQUATIC LIFE Aquatic life in water bodies that would be affected by the Moffat Project are already showing signs of impacts and degradation due to current operation of transmountain diversions projects. Additional depletions resulting from operations of the Moffat Project could significantly exacerbate these conditions. **1. The Moffat Project will have significant adverse effects on aquatic life.** 45	Regarding comparisons made in the comment to historical Moffat Tunnel diversions and historical streamflows shown in Table 3 of the Joint Rebuttal Report, please see the response to Comment ID 4743. ***Comment #836-91*** *(ID 4725)**:*** *Magnitude of Hydrologic Modifications The magnitude of hydrologic modifications due to the Moffat Project is under-reported because DEIS modeled "current" conditions do not reflect actual existing conditions. Moffat Tunnel. Colorado Division of Water Resources' actual diversions records show an average Moffat Tunnel delivery (SID 4655) of 57,322 acre feet per year (1984-2008). http://cdss.state.co.us/DNN/default.aspx. The DEIS shows modeled, "current conditions" diversions through the Moffat Tunnel of 63,799 acre feet per year (DEIS, Appendix H, Table H-7.1). This overstates average annual diversions by 6,477 acre feet Gumlick Tunnel. Denver Water's actual Gumlick Tunnel diversion records show average diversions of 4,930 acre feet per year (1985-2006). Denver Water Records entitled Jones Pass Tunnel (aka August P. Gumlick) Diversions from 1940-2006. The DEIS shows modeled "current conditions" diversions through the Gumlick Tunnel of 8,853 acre feet per year (DEIS, Appendix H, Table H-7.1). This overstates average annual diversions by 3,923 acre feet. Roberts Tunnel. Denver Water's actual Roberts Tunnel diversion records show average diversions of 56,227 acre feet per year (1964-2008). http://cdss.state.co.us/DNN/default.aspx. The DEIS shows modeled "current" diversions through the Roberts Tunnel of 69,676 af/yr (DEIS, Table H-7.1). This overstates average annual diversions by 13,449 acre feet. Streamflow amounts are under-stated during months the Project proposes to divert. Because the DEIS uses modeled diversion data rather than actual diversion data, stream flows below the Moffat Collection System under existing conditions are under-stated. Table 3, compares*

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	a. DEIS Conclusion The DEIS acknowledges that operation of the Moffat Project will cause and contribute to exceedences of stream temperature standards (*DEIS, pages 4-40 to 4-42*) and will dry up streams more frequently and for longer periods (*DEIS, pages 4-319*). However, it concludes that operation of the Project **will result, at most, in "negligible" to "minor" impacts to aquatic** resources in various streams in the Fraser and Williams Fork basin and no impacts in the Blue River and Colorado River. *(DEIS, pages 4-316 - 4-325)*. b. DEIS Conclusion Errors The DEIS conclusions are unexplained, unjustified and unsupported. **(i) Drying up a Stream has significant adverse effects on aquatic life.** For most of the tributaries of the Fraser River basin and the Williams Fork River basin which are currently dried up by the original Moffat Project diversions, the DEIS concludes that **impacts to fisheries and macroinvertebrate communities will be "minor" even though the** Project will prolong dry up conditions. Examples include tributaries of St. Louis Creek , King Creek , Elk Creek and tributaries , Little Vasquez Creek , Jim Creek , Middle Fork and South Fork of Ranch Creek , North Fork of Ranch Creek , and tributaries of Williams Fork (McQueary, Jones Bobtail and Steelman creeks) (*DEIS, pages 4-319 to 4-324*). For almost all of these streams, the DEIS identifies the presence of trout and/or macroinvertebrates at least downstream of the diversions structure. However, Poff (2010) notes that field data from the Fraser River (McCarthy 2008) and in broader surveys *(Albano, 2006)* indicate that below diversion structures without by-pass flows reductions in species richness and abundance is dramatic. This impact is reduced where there is some year around flows because organisms from undiverted, upstream reaches are able to move into the diverted reaches. Fish and aquatic macroinvertebrates need water. Without water, impacts to **fish and aquatic macroinvertebrates can never be "minor."** **(ii) Causing or contributing to the violation of acute (lethal) stream temperature standards has a significant adverse effect on aquatic life.** The DEIS acknowledges that operation of the Moffat Project will result in incremental exceedences of State daily maximum stream temperature standards in Ranch Creek *(DEIS, page 4-40)*, and the mainstem of the Fraser River *(DEIS, pages 4-41 and 4-42)*. **The State's** daily maximum standards represent the maximum stream temperatures considered to be safe for fish. Exceedences of those standards are presumed to be lethal to fish. Nevertheless, elevation of stream temperatures to levels that are lethal to fish is defined in the DEIS as **causing a "moderate" impact to aquatic resources.** **2. The DEIS fails to evaluate critical information necessary to assess the viability of aquatic resources.** a. DEIS Conclusion 46	*actual gauged data in a dry year (2002) and a wet year (1984) to DEIS modeled average data for dry and wet years for the months of May, June and July, when the majority of Project diversions are proposed. The effect of using modeled versus actual data is to understate the impacts of the Project during dry years and the magnitude of diversions during wet years as shown by the follow examples: Dry Years. Actual 2002 stream flows at the Fraser River at the Granby Gage averaged 16 cubic feet per second in June, whereas the model predicts an average dry year flow of 89 cubic feet per second in June at that same gage, a discrepancy of 82%, (Table 3). Wet Years. Actual 1984 stream flows at the Fraser River near the Winter Park Gage averaged 124 cubic feet per second in May, where the model predicts an average wet year flow of 32 cubic feet per second at the same gage, a discrepancy of 288%, (Table 3). The analysis of impacts to the aquatic environment cannot be accurate. Because the modeled "current conditions" diversions are over-stated and the decrease in stream flows due to the Moffat Project are under-stated, the analysis of the impact of Moffat Project depletions on the aquatic environment, recreation and water and wastewater facilities is called into question. [SEE SOURCE FILE FOR TABLE 3, COMPARISON OF AVERAGE MONTHLY STREAMFLOW ACTUAL HISTORICAL CONDITIONS & DEIS "CURRENT CONDITIONS".]* **Response #836-91:** The purpose of the Current Conditions scenario is to represent hydrologic conditions that would occur over the 45-year study period under Current Conditions, including facilities, operations, consumptive and non-consumptive water rights, instream flow rights, demand levels, operating rules, and other water management considerations and preferences throughout the Upper Colorado River basin. The Current Conditions is not intended to replicate historical flows at USGS gages and

Comment Information	Comment	Comments and Responses
	The DEIS concludes that operation of the Project will result, at most, in **"negligible" to "minor" impacts to aquatic resources in various streams in the Fraser and Williams Fork basin** and no impacts in the Blue River and Colorado River. *(DEIS, pages 4-316 - 4-325)*. In some cases, the DEIS concludes that additional depletions will have a beneficial impact on some streams. *(E.g., DEIS, page 4-316)*. As a result, the DEIS offers minimal if any mitigation to protect aquatic resources. **b. DEIS Conclusion Errors** **The DEIS's conclusions regarding impacts of the** Moffat Project on aquatic resources is based on erroneous assumptions, inaccurate and incomplete data and analysis, and flawed methodology. **(i) Aquatic Resources at the Tipping Point** The DE**IS states that "knowing whether a resource is healthy, declining, near collapse, or not** functioning is necessary for determining the significance of any added impacts due to the **Moffat Project"** (*DEIS, page 5-3*). Yet, the DEIS does not evaluate or make a determination regarding the current health of the resource, electing instead to assume that the resource is currently healthy, not in decline or near collapse and functioning. This assumption is contradicted by available data and studies. A recent report by aquatic researchers and biologists at the Colorado Division of Wildlife **(DOW) concludes that "the overall abundance and distribution of the stonefly** *Pteronarcys californica* and the mottled sculpin (*Cottus bairdi*) have changed downstream of Windy Gap Dam **post dam construction", that "the abundance of both species is greatly reduced compared** to pre-**impoundment data" and that "increased future water diversions may exacerbate these trends"** *(Nehering, 2010)*. In its comments regarding the Windy Gap Firming Project, the **DOW points to significant declines in trout populations as follow: "In 1981, the trout** population in the Kemp-Breeze State Wildlife area near Parshall included 89 trout per acre longer than 14 inches. In 2007, the estimate for the same reach of river was 21 trout per acre longer than 14 inches. This data supports the popular notion among the angling public that the quality of fishing on this reach of river has steadily declined since the construction of the **Windy Gap project." (DOW** 2009). Proliferation of harmful aquatic species such as didymo and whirling disease-producing *tubifex worms*, are documented problems in many of the affected streams. (*DEIS, pages 3-214 and 4-313 to 4-314)* High stream temperatures have led to the listing of portions of the Fraser River, Ranch Creek and Colorado River **in the State's** Clean Water Act 303(d) list of impaired water due to impacts to aquatic life. Empirical evidence shows that sedimentation is a problem in the Fraser River. *(Wesche, 2009)* These are signs of an already deteriorated system, not of a healthy one. **Hydrological changes can have significant impacts on the river's aquatic resources. Flows** affect the availability of habitat, water quality, and water temperature of the stream. They also affect the **stream's ability to serve functions that play a critical role in supporting a** healthy aquatic ecosystem, such as channel creation and maintenance and cleansing of sediments lodged in spawning beds. 47	diversions at the Moffat, Gumlick, and Roberts tunnels as suggested in the comment. The Current Conditions scenario accurately depicts current level of diversions and does not understate the incremental change that would occur with a Project on-line. It is not appropriate to compare Current Conditions model data to historical data to evaluate effects for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. One would expect potentially large differences when comparing model results with historic records. Modeled Current Conditions Moffat Tunnel diversions (63,799 AF/yr) are higher than average annual Moffat Tunnel diversions for the period from 1984 through 2006 because Current Conditions diversions reflect meeting an average annual demand for Denver Water of 285,000 AF/yr whereas, the average annual demand met during the period from 1984 through 2006 was less. In addition, there are likely differences in the averages because the periods compared are different lengths and may be hydrologically different. It is possible that the period from 1984 through 2006 is wetter overall than the period from 1947 through 1991, which could also partially explain why the historical average is lower. These reasons also apply to differences in Current Conditions versus historical Gumlick Tunnel and Roberts Tunnel diversions and flows in the Fraser and Colorado rivers. For similar reasons, Current Conditions modeled streamflows in the Fraser River should not be compared with historical data. At some locations in the Fraser River basin, average monthly dry year

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	The hydrology of the Fraser and Williams Fork basins, and of the upper Colorado River has been dramatically changed by existing transmountain diversions. The Moffat DEIS discloses that average annual flows at the Fraser River at Winter Park gage have been reduced from 32,080 acre feet per year prior to 1935 when Moffat first came on line to just 12,890 acre feet **since 1935; a reduction in flow of 60 percent. The DEIS also discloses that "Denver Water** diverted approximately 50% of the average annual native flow available at the Fraser River at Winter Park gage for the 30-year period from 1975 through 2004. *(DEIS, page 3-21)* The DEIS also discloses that native average annual lows at the Colorado River at Windy Gap have been reduced by 62% by Moffat, C-BT, and Windy Gap Projects from the period from 1985 through 2004. Flows at the Colorado River at Hot Sulphur Springs gage have been reduced from 528,730 acre feet per year prior to 1935 to just 229,030 acre feet per year (a 57% reduction) from 1936 through 1994 after Moffat, C-BT and Windy Gap began diverting in 1936, 1950, and 1985, respectively. *(DEIS, page 3-38)*. These dramatic reductions to the natural hydrograph and stream system are depicted in figures presented in Section III. Further, incremental reductions in flows and alterations to the existing hydrograph, as a result of the Moffat Project and other reasonably foreseeable depletions, will reduce the resiliency of the system and place the system at much higher risk of threshold (non-linear) changes to the aquatic community. Threshold changes are those **changes in a stream's hydrology** beyond which the system may exhibit dramatic changes, including loss of its fisheries. *(Schaffer and Carpenter, 2003; Groffman, et.al., 2006)* The DEIS acknowledges the potential for these threshold responses, but indicates that **"threshold effects or a risk analysis approach to impact analysis were not used" because "thresholds are difficult to identify and would require abundant data collection and analyses . . . that is beyond the scope of the EIS."** *(DEIS, page 4-311)*. Given the dramatic alterations of the natural hydrograph of affected streams and the documented signs of ongoing deterioration **of their aquatic resources, the DEIS's failure to include such analysis within its scope is** unconscionable. Its failure to conduct such risk analysis renders the DEIS fatally flawed. **(ii) Dry Year Impacts.** Impacts to aquatic life exposed to more dry year conditions were not evaluated. The DEIS aquatics impacts analysis focuses on average and wet year conditions, as those conditions are defined in the PACSM Model. **The DEIS states that "Typically additional diversions would be greatest in wet years following dry year sequences"**. *(DEIS, page 4-5)* This trend would create more frequent back-to-back dry years and therefore, more frequent stress to aquatic species. For instance, the impacts of the 2002 drought continued to be felt in 2003 and subsequent years because of the 2002 reservoir draw-downs. Dry-year conditions can have significant impacts on aquatic resources, particularly when they occur in consecutive years. They can create particularly harmful bottle-necks for aquatic life, especially in late summer and early fall as stream flows decline to critical levels. Low stream flows cause reductions in available aquatic habitat as more of the stream channel becomes desiccated and the remaining aquatic habitat becomes marginal as velocities and depths are reduced. In addition, stream temperatures fluctuate more rapidly at low flows thereby increasing the probability of exceeding both daily maximum and weekly average temperature standards. Many of the Fraser River tributaries are completely dewatered by the original 48	streamflows for Current Conditions are higher than actual streamflows in 2002 for several reasons. The average monthly dry year streamflow is an average of the five driest years during the study period whereas 2002 is the driest year on record in the Fraser River basin. Furthermore, bypass flows were reduced in 2002 whereas bypass flows were not reduced in two of the five years selected for the dry year average because the agreement to reduce bypass flows was not in effect until 1970. As discussed above, one would expect potentially large differences when comparing model flows with historic records. The comparison of flows at the St. Louis Creek gage shown in Table 3.1 of Bishop-Brogden Associates, Inc.'s (BBA's) letter is an excellent example of why modeled flows should not be compared to historical flows to assess hydrologic effects. Denver Water's diversions in the St. Louis Creek basin did not commence until 1956. As a result, historical flows in 1954 and 1955 shown in Table 3.1 at the St. Louis Creek gage are considerable higher in May, June and July than in 1963, 1977, and 1981. This explains to a large decree why monthly averages of historical flows in 1954, 1955, 1964, 1977, and 1981 are much higher than historical monthly average flows in 2002 and the modeled dry year average monthly flows for Current Conditions and Full Use of the Existing System. Furthermore, historical flows in 1954 and 1955 are not reflective of Current Conditions since they do not reflect the effects of the existing Moffat Collection System diversions from St. Louis Creek. If modeled flows with the proposed Moffat Project on-line were compared to historical flows in 1954 and 1955, the differences would reflect all the changes that have occurred since that time and not just the effects of the proposed Moffat Project. Similar to dry years, average monthly wet year streamflows for Current Conditions are lower than actual streamflows in 1984 at some locations in the Fraser River basin because the average monthly wet year streamflow is an average of the five wettest

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	Moffat Project and the Colorado River below Windy Gap already experiences low stream flows and high water temperatures during most dry and some average water years. The Moffat Project has the potential to significantly exacerbate these existing problems by prolonging low flow periods in average years, increasing the frequency of dry year conditions and effectively creating prolonged drought conditions. Yet, as discussed in Section II.A., the DEIS does not ask whether or how often these dry-year and extended drought conditions will occur as a result of operation of the Moffat Project, or what impacts such conditions will have on aquatic resources. The DEIS PACSM study period runs from 1947 through 1991 and does not include the 2002/2003 conditions. In doing so, the DEIS not only ignores one of the most severe droughts on record, it completely disregards the role of Moffat Project and other reasonably foreseeable projects in extending the duration of **drought conditions and the impacts this would have on the Fraser and Colorado Rivers'** aquatic resources. **(iii) Macroinvertebrates, Other Fish Species, and Whirling Disease** ***Impacts to macroinvertebrates not evaluated.***_The DEIS states that benthic invertebrate communities were evaluated based on available hydrology, morphology and water quality information and that no habitat simulations were conducted. (DEIS, *page 4-313)* It **concludes that "as long as flushing flows are adequate to maintain substrate composition, invertebrates would have more favorable habitat availability with reductions in peak flows".** This conclusion is entirely subjective and arbitrary. No scientific literature is cited for the proposition. Empirical evidence indicates that some stream segments are already experiencing aggradation/accumulation of fine sediments and water quality degradation under current flow regimes. Accumulation of fine sediment and degradation of invertebrate habitat can only be expected to worsen as peak flows are reduced. Changes in available habitat and stream temperature are not the only mechanisms by which fish can be impacted. Trout can be impacted if changes in flow lead to a collapse of important food resources like the stonefly, *Pteronarcys californica*. As previously stated, a recent report by the Colorado Division of Wildlife (2010) concludes that *Pteronarcys californica* have been significantly reduced and in some cases eliminated since 1980. The DEIS fails to adequately evaluate these impacts or explain why these obvious changes in macroinvertebrate populations have been ignored. ***Impacts to other fish species not evaluated.*** The DEIS fails to evaluate impacts to fish species other than trout. It states that two native species of sculpin are present within Moffat System Project Area. (*DEIS Table 3.9-1at p. 3-211)* In addition, non-native dace, chub darter, and sucker can also be found in these study areas. The DEIS fails to evaluate impacts of the project on these other native and non-native fish species. Changes in habitat availability and stream temperature are not the only mechanisms by which fish can be impacted. Trout can be impacted if changes in flow lead to a collapse of important food resources like the sculpin, *Cottus bairdi*. As previously stated, a recent report by the Colorado Division of Wildlife (2010) concludes that mottled sculpin populations have been 49	years during the study period, whereas 1984 is the wettest year on record in the Fraser River basin. In addition, the demand met in the five wettest years under Current Conditions is different than the demand met in 1984. Differences in the timing of filling Gross Reservoir can also result in differences in Current Conditions average wet year monthly flows versus historical flows in 1984. Modeled Current Conditions average annual flows in the Colorado River below Windy Gap are lower than historical average annual flows from 1984 through 2008 primarily because the average annual demands for several entities upstream of this location, including Denver Water and Windy Gap, have increased due to growth and are higher under Current Conditions. As a result, Denver Water's diversions and Windy Gap diversions under Current Conditions are higher on average, resulting in lower modeled flows below Windy Gap on average than historically occurred. Dry year flows are not misrepresented and the impacts of the Project are not understated in a dry year. There would be no additional diversions due to the Moffat Project in the single driest year in the study period as well as the average of the five driest years. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly and annual summaries of stream flows, diversions, reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with each Moffat Project alternative. Daily data were used in resource assessments where the magnitude or value of the resource is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily

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	significantly reduced since 1980. The DEIS fails to adequately evaluate these impacts or explain why these obvious changes in native fish species populations have been ignored. ***Impacts on whirling disease not evaluated.*** The DEIS fails to evaluate impacts of the Moffat Project and other reasonably foreseeable projects on whirling disease and, consequently, on the Colorado River, west slope reservoirs, and east slope streams and reservoirs fisheries. The DEIS lists two aquatic nuisance species; whirling disease and didymo, *(DEIS, page 3-214)*, and acknowledges that conditions that result in increased sedimentation may provide additional habitat for the intermediate tubifex worm host for whirling disease. (*DEIS, page 4-313)*. However, relying on a flawed sediment impacts analysis, the DEIS concludes that there would be no increase in habitat for the Tubifex worm. As a result, no further analysis is conducted to evaluate the potential impacts of the Moffat Project on the perseverance of whirling disease and, therefore, on the survival of trout populations in the Fraser River, its tributaries, the Colorado River and in east slope reservoirs and streams. **(iv) Predictive Tool** **The DEIS's** conclusions about aquatic resources rely on incorrect predictions about surface water hydrology, channel morphology and function, and water quality. **The DEIS's aquatic resources impacts analysis relies on the use of Instream Flow Incremental** Methodology (IFIM) to assess fish habitat availability. (*DEIS, page 4-308)*. Recognizing the important role that changes in channel morphology, sedimentation, water quality and riparian vegetation play in sustaining aquatic resources, the DEIS indicates **that "differences in these** aspects of the aquatic environment were incorporated using professional judgment of the suitability of the stream to support **aquatic life."** (*DEIS, page 4-307)* Accordingly, to the **extent the DEIS's analysis and conclusions regarding these** flow related factors are flawed, **the DEIS's conclusions regarding impacts to aquatic resources are not supported.** Moreover, both the IFIM methodology and the analysis of Project impacts to channel morphology, **sedimentation, water quality and riparian vegetation rely on the DEIS's prediction of changes** in surface water hydrology due to operation of the Project. As a result, to the extent such **analysis and predictions are flawed, they provide no support for the DEIS's aquatic resources impacts analysis and the DEIS's conclusions in this regard are unjustified.** ***Flawed surface water hydrology analysis.*** For the reasons discussed in Section II A., the **DEIS's surface water hydrology** analysis and predictions of stream flow changes due the Moffat Project are fundamentally flawed. These flaws **permeate every aspect of the DEIS's** analysis and conclusions regarding impacts to aquatic resources, including: ▫ Predictions of flow reductions during dry, average and wet years; ▫ **Analysis of the Project's potential for completely drying up streams or extending** periods in which Denver Water diversions currently dry up streams; ▫ Analysis of potential for increasing low flow periods; ▫ Analysis of potential for decreasing peak flows. **The DEIS's aquatic resources impacts analysis and conclusions depend on a sound surface** hydrology impacts analysis and accurate predictions of stream flow changes. The DEIS 50	data was utilized to evaluate effects on several resources, including surface water, aquatic resources, stream morphology, recreation, floodplains, riparian and wetlands areas, wildlife and special status species, and water quality (see DEIS Section 4.1, subheading Use of Daily and Monthly PACSM Data for Resource Evaluations). Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes (see DEIS Appendices H-4, H-5, and H-6). Averaging the five driest years as opposed to selecting the single driest year is a reasonable approach for evaluating hydrologic effects under dry conditions. The average of the five driest years captures a broader range of flow conditions and diversions that could be expected to occur during a dry year and better represents a typical dry year. For example, Moffat Project diversions in a dry year following a wet year may be different that a dry year following a dry year. These differences would be reflected in a dry year average that includes five years with varying hydrologic conditions in preceding years. The driest year, could be the year with the lowest total natural flow during the runoff period which extends from April through August, or it could be the year with the lowest total annual natural flow, or depending on the resource it could be the year with the lowest natural flow in a specific month. Furthermore, conditions may be more or less dry depending on the location selected. Therefore, the approach selected to average the five driest years on based on the estimated natural flows at the USGS gage, Colorado River near Kremmling, takes into account the spatial and temporal variability in "dry conditions" that can occur. Even if one of the five dry years was selected for evaluation of impacts, the predicted impacts to flows as a result of the proposed Moffat Project in a dry year would not change since there would be no additional diversions associated with the Moffat Project in any

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	analysis and predictions in this regard are fundamentally flawed. As a result, the DEIS impacts analysis of aquatic resources is flawed and its conclusions unjustified. ***Flawed water quality analysis.*** Changes in water quality can have a profound impact on fish and macroinvertebrates. Of particular concern are elevated stream temperatures, which are already a significant problem in many of the affected streams. In some cases, stream temperature has been identified by the State of Colorado as the cause of impairment to the streams' **fish and microinvertebrates**. Other parameters, such as metals, can be lethal to **aquatic life in very small amounts. The DEIS's conclusion** that the Project will have **"negligible" to "minor" impacts on** aquatic resources relies heavily on the water quality impacts analysis performed. As discussed in Section II.B., the DEIS water quality impacts analysis is fundamentally flawed and its conclusions unjustified. In fact there is no analysis of whether increases in temperature will exceed water quality standards protective of aquatic life although tools like the Stream Segment Temperature Model available to make this kind of determination. As a result, the DEIS conclusions with respect to impact of the Project on aquatic resources are unjustified. ***Flawed channel morphology and sediment transport analysis***. The DEIS conclusion that the Project will have **"negligible" to "minor"** impacts relies heavily on the DEIS conclusion that reduction of peak flows will not result in increased sedimentation of affected streams. For all **streams evaluated, the DEIS concludes that "flushing flows would be sufficient" or that "there would be no changes in sediment accumulation" and therefore, reductions of peak flows** would not result in impacts to aquatic resources. *(DEIS, pages 4-315+)*. As discussed in Part C, the sediment impacts analysis is fundamentally flawed and contrary to available empirical evidence. **As a result, the DEIS's conclusion that reduction of peak flows will not ha**ve a negative impact on the aquatic resources is unjustified. **(v) Screening Criteria, Assumptions, Data and Methodology** ***Arbitrary screening criteria.*** The DEIS does not evaluate impacts to aquatic resources between Existing Conditions (2006) and Full Use (2016). Rather, it elects to restrict its evaluation to the period between Full Use (2016) and the Moffat Project (2030). *(DEIS, page 4-315)*. **The DEIS briefly "discloses" potential impacts between** 2006 and 2016 for some streams in the Fraser River basin and for the Blue River, and reaches conclusions that are unexplained and unsupported. *(DEIS, page 4-113)*. The Williams Fork basin streams are not evaluated at all. This arbitrary approach renders the DEIS analysis and conclusions regarding the cumulative impacts of the Project on aquatic resources essentially meaningless. As such, the DEIS fails to evaluate the conditions of the fisheries under Existing Conditions, assess their status between Existing Conditions (2006) and Full Use (2016), or accurately evaluate the impacts the proposed 60,000 acre feet of additional depletions projected to occur between Existing Conditions and Full Use. For example, McCarthy (2008) demonstrated that benthic species encompassing about 43 kilometers of stream length below 18 diversion structures in the Fraser River watershed are impaired, as measured by rheophile species populations recovering to within one standard deviation of above diversion reference conditions. 51	of the five dry years included in the "average dry year." Differences between Denver Water's records of Moffat Tunnel flows at the East Portal versus records maintained by the Division of Water Resources (DWR) are most likely due to gage height calibration corrections and shift adjustments to the standard 15-foot Parshall flume rating. The State and DWR operate their own data recording devices at the gage. Occasionally operational conditions would cause the flume to deviate from its theoretical stage-discharge relationship. At the end of the water year, DWR staff take all available data collected and make adjustments to daily mean flows by smoothing the application of any gage height calibration corrections and shift adjustments from gage visit to gage visit. This can cause differences between DWR and Denver Water records of flows recorded for the Moffat Tunnel at the East Portal. ***Comment #836-90*** *(ID 4724)**:*** *2016 "Baseline" Demand Assumptions The DEIS 2016 "baseline" assumptions are based on inflated demand predictions. The DEIS analyzes the impacts of the Project by comparing the PACSM modeled future baseline of "Full Use" (2016) to the PACSM modeled "Full Use w/Project" (Proposed Alternative, 2030). (DEIS, Page 4-10). Impacts between "Current Conditions" (2006) and "Full Use" (2016) are sometimes discussed, but are not fully evaluated and are not used to draw conclusions about the Project's impacts to the environment. [SEE SOURCE FILE FOR AVERAGE ANNUAL WATER DEMAND – DENVER WATER SERVICES AREA FIGURE.] The DEIS overstates Denver Water's demands in 2016, thus under-reporting Project depletions and the resulting environmental impacts. Demand between modeled existing conditions (2006) and the Full Use conditions (2016) is assumed to be 6,000 acre feet per year. In contrast, the increase in demand between the Full Use (2016)*

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	Flawed methodology and insufficient data. The DEIS aquatic resources impacts analysis relies on tools that are insufficient to predict aquatic impacts and on subjective professional judgment. The DEIS uses the IFIM to evaluate impacts to trout habitat for some streams, but admits that within the Fraser and Williams Fork basins, **"IFIM data were not available for** most of these tributaries." *(DEIS, page 4-309)* The DEIS indicates that R-2-Cross data were available for a few of these tributaries **and "no hydrologic data were available for most of** these tri**butaries"**. *(DEIS, page 4-309)* **The DEIS goes on to state that on streams where "R**-2-Cross information existed, potential impacts were analyzed for the tributaries using **professional judgment"** *(DEIS, page 4-309)*. Lastly, the DEIS admits to the use of **"professional judgment" to evaluate chang**es to water quality, channel morphology, and riparian vegetation *(DEIS, page 4-307)*. Quoting from one of the peer-**reviewed, scientific papers cited in the DEIS itself, "As a** predictive tool for ecological management, the IFIM modeling approach has been criticized both in terms of the statistical validity of its physical habitat characterizations and the limited **realism of its biological assumptions"** *(Poff et al. 1997)*. The R-2-Cross methodology is significantly less rigorous and less accepted by the scientific community than IFIM. R-2-Cross is not even a measure of available habitat but rather the limitation for fish passage. Professional judgment is subjective and should not be used to make important decisions regarding the long term health of the aquatic environment. The lack of available scientific data should not provide the basis for moving the Moffat Project forward. This deficiency is compounded by the fact that the DEIS lacks sufficient data to make conclusions regarding impacts to aquatic resources. DEIS Table 3.9-6 indicates that the majority of streams do not **have any fish data collected above Denver's diversion structures** and almost half do not **have fish data collected below Denver's diversion structures**. *(DEIS, page 3-224)*. Insufficient data should not be the basis for moving the Moffat Project forward. The use of IFIM, R-2-Cross, and professional judgment to evaluate impacts to fish habitat, water quality, channel morphology and riparian vegetation are insufficient to make a conclusive determination that the aquatic environments of these river basins will not be significantly degraded by the Moffat Project. Insufficient data should not be the basis for allowing the Project to move forward without terms and conditions designed to avoid, minimize or mitigate its impacts to aquatic resources. ***Erroneous Assumptions.*** The DEIS improperly concludes that large flows are harmful to fish and fish habitat and, in a number of cases, concludes that the Moffat Project depletions will actually be beneficial to fish and macroinvertebrates. The DEIS mischaracterizes a paper written by Poff et al. (1997) to support the idea that extremes in flow and habitat conditions **act as a "bottleneck to limit population size"**. *(DEIS, page 4-311)*. In fact, the Poff paper cited in the DEIS, is titled **"The Natural Flow Regime: A paradigm for river conservation and restoration". The primary focus of this paper is on the value of** a natural flow regime, something the Moffat Project will further impact. **The DEIS's assumption is particularly troublesome because over**-bank, habitat-producing flows were historically available to the river but were dramatically reduced by operation of the original Moffat Project. The Poff paper cited in the DEIS does not support the DEIS claim that extreme flows are habitat bottlenecks for fish. Rather, high flows are necessary to 52	*and the Moffat Project (2030) is assumed to be only 1,286 acre feet per year. The inflated demand projection means that the depletions predicted by the DEIS between 2006 and 2016 are greater than they will really be (thus, the DEIS "front loaded" the majority of the impact). Examples of this artificial "front-loading" of depletions and impacts include: • Assumption that most conservation savings will occur after 2016. While the DEIS indicates that there will be conservation saving both before and after 2016, it does not factor in conservation savings before 2016. It is unrealistic that Denver Water's demands, and the expected diversions, will suddenly drop following 2016. • No mandatory restrictions in dry times. The DEIS does not include estimated demand reduction due to mandatory water restrictions in dry times. • No reduction of per capita use. The DEIS does not take into account reduction of per capita uses since 2002 or reflect current demand levels and recent growth compared to projected population in 2016. • Demand includes obligations contingent upon construction of the Moffat Project. Modeled 2016 demand projections include a 3,000 acre feet per year contractual obligation to the City of Arvada that is contingent upon approval of the proposed Project and, therefore, would not occur but for the Project. Accordingly, impacts associated with that demand should be evaluated for the period between 2016 (Full Use) and 2030 (Moffat Project), not for the period between 2006 (Existing Conditions) and 2016 (Full Use).* **Response #836-90:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use of the System with a Project Alternative (2032). FEIS

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	flush sediments from gravels and maintain a healthy ecosystem. Poff (2010) states that **"while very high flows may indeed** reduce recruitment of trout fry, healthy populations of trout (i.e., those with lots of good habitat and ample food resources and a stable age distribution) are able to maintain robust populations even in the face of occasional large **spring runoff events…"** Modeling results from IFIM that predict minimal amounts of fish habitat at high and low flows and improved habitat conditions as a result of stream flow depletions associated with the Moffat Expansion should be ignored. A second invalid assumption used in the DEIS is that winter habitat is more limiting to fish populations than depleted flows associated with the Moffat Project. The DEIS admits that the IFIM analysis was based on only warm season habitat use criteria and it goes on to acknowledge that trout use different habitats between the summer and winter months. (*DEIS, page 4-308)* **The DEIS indicates that "In winter, trout tend to use deeper habitat with slower velocity and slightly larger substrate and may be more oriented to cover". Based on this**, the **DEIS concludes that "warm**-season habitat use criteria likely overestimate the habitat actually **used by trout in the winter"**. This conclusion is incorrect. In fact, the use of warm season curves would likely underestimate the amount of habitat available in the winter months. Trout tend to use low velocity habitats during the winter months, therefore the use of warm season criteria (that indicate a preference for faster velocities) in IFIM modeling would result in reduced amounts of preferred habitat as stream flows, and instream velocities, are reduced in the winter months. Using warm season habitat use criteria to simulate winter habitat availability creates an erroneous modeling result and an incorrect conclusion regarding habitat availability. The DEIS conclusion that streams are limited by low habitat availability during the winter months is unfounded since the DEIS relies on the flawed assumption that warm season habitat use criteria overestimates the amount of available habitat in winter. **c. Environmental Consequences** There is a direct correlation between further compromised stream conditions and aquatic life; ▪ Additional diversions of the magnitude caused by the Project will reduce available habitat for fish ▪ The increase in streams drying up completely or for more extensive periods during diversion activity is lethal to fish and microinvertebrates since these species cannot survive without water. ▪ Extending periods of low flow may result in increased water quality, sedimentation, and invasive species problems. ▪ Decreasing peak flows can impact channel morphology, and sediment transport, conditions that play a significant role in supporting fisheries and macroinvertebrates. 53	Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use of the System with a Project Alternative (2032). Mandatory watering restrictions are designed for short-term reductions in water use during drought and would not independently or reliably meet the required firm yield of 18,000 AF. Additionally, drought responses are not appropriate for long-term water supply strategies because Denver Water must always be in a position to respond to immediate, unforeseen shortages in supply. Denver Water is implementing an aggressive conservation plan in order to achieve sustainable long-term reductions in demand. The expected savings from the conservation plan were subtracted from the projected demand in calculating the need for 18,000 AF of new reliable firm yield. Therefore, Denver Water has assumed future increases in conservation in its water demand projections as part of its Purpose and Need. Therefore, future conservation is assumed in all of the alternatives evaluated in the EIS. If a project is not developed (No Action Alternative), Denver Water does not have an obligation to provide Arvada with up to 3,000 AF/yr. However, Arvada would still have this demand to be met without an identified supply. Therefore, the Corps believes it is a reasonable and conservative approach to include the 3,000 AF in the predicted 2032 demand in the analysis. Water demand projections were developed through a series of models, as described in detail in the technical memoranda included in Appendix A. A number of inputs are required for the operations of the model, including economic and demographic projections developed by DRCOG, the State demographer and others. As urban areas become more developed, growth often occurs at a slower pace, and water demands would also increase at a

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	E. RECREATION Gradually, since 1940, tourism has grown to become the primary economic driver in both Grand and Summit Counties. Unlike other more urban environments, every tourist activity in Grand and Summit Counties relies directly on water. Recreation is the primary reason why visitors come to these counties. The DEIS focus only on fishing and boating and excludes consideration of a wide variety of other summer recreation activities impacted by water. In the few cases where baseline conditions are quantified, the DEIS provides dismissive, judgmental conclusions such as "not necessarily adversely 'effect'" without analytical rigor. In many instances, the DEIS does not provide baseline information about the recreation activity under discussion; reaching impact conclusions in these circumstances is not supportable. 1. The DEIS concludes that there are no fishing impacts in Grand County. a. DEIS Conclusions The DEIS does not contain any information about the relationship between stream flow, stream temperature, water quality, water clarity and the quality of the fishing experience on the Blue, Fraser, Williams Fork or Colorado rivers. It concludes there are no negative impacts. "Generally, no negative impacts to fishing would occur, although possibly some improvements to the quality of fishing." *(DEIS, page ES-35)* TABLE 13. SUMMARY OF FISHING IMPACTS IN GRAND COUNTY | River Segment | Recreation Impact (Average Year) |		Socioeconomic Effect | |	2016 (Compared with 2006) | Proposed Action (Compared with 2016) | Proposed Action (Compared with 2016) | | Fraser | "flow reductions would not adversely effect the quality of fishing" *(4-374)* | No impact | No quantitative conclusions. | | Williams Fork | No analysis. | No impact (4-374) | No impact (4-431) | | Blue | No analysis. | No impact (4-378) | No analysis. | | Colorado | No analysis. | No impact (4-377) | No impact (4-431) | (i) Fraser River The DEIS concludes there are no negative impacts to fishing in an average year in 2016 compared with 2006. "Flow reductions would not necessarily adversely 'effect' the quality of the fishing experience." *(DEIS, page 4-374)* It also concludes there is "no impact" when comparing the Proposed Action with 2016 for an average year. Since the DEIS concludes there are no impacts to the quality of fishing, the DEIS reports no socioeconomic effects. 54	slower rate. Therefore, it is realistic to see a smaller increase in water demands further out into the future. Denver Water's conservation plan includes additional measures in future years. The amount of conservation and natural replacement is divided into three time frames in the EIS. The first is conservation achieved by 2010 (40,800 AF/yr); the second is 56,700 AF/yr by 2032; and the third is 68,000 AF/yr cumulatively by 2050 (see FEIS Table 1-1). The data inputs and variables used in the water demand forecasting models have been reviewed and updated, as appropriate and applicable, for the FEIS. More recent DOLA and DRCOG data, including economic and demographic projections, reflect the conditions of the past 10 years and incorporate these patterns into the projections. ***Comment #836-87*** *(ID 4723)**:*** *Depletions Downstream of Kremmling The DEIS does not evaluate the impacts of the Project on the Colorado River downstream of Kremmling because it concludes that the change in annual flow at this location is less than 10%, the DEIS's artificially imposed threshold for evaluating impacts. (DEIS, page 3-4). This 10% screening criteria is unjustified and the conclusion that flow reductions are less than 10% often is in error. Annual average changes in total annual volume may be less than 10% but, on average, the monthly average changes in flow are greater than 10% in the months that Moffat Project diversions will occur (DEIS, Tables H-3.32 and H-1.36): [SEE SOURCE FILE FOR TABLE 4, MONTHLY CHANGES IN STREAMFLOW, DOWNSTREAM OF KREMMLING.] This is an example of how the DEIS use of averages prevents the analysis of impacts on aquatic resources that occur on a monthly or daily basis.* **Response #836-87:** In the DEIS, the downstream extent of the study area was based on the location where average monthly flow changes under the action alternatives

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	Elsewhere, the DEIS states that between 2006 and 2016, the Fraser River above Crooked Creek would experience a 2% to 18% reduction in stream flows in the summer months *(DEIS, Page 4-406)* during an average year and an additional 30% to 40% reduction in stream flows between 2016 and 2030. (DEIS, *page 4-406)* The DEIS contains a related mark that reducing flushing flows may be beneficial to fishing because the fish will remain more active. "Flow reductions during periods of high flows are not likely to adversely 'effect' the quality of the fishing experience. In some cases, flow reductions during periods of high flow may actually provide a minor beneficial 'affect' to the **quality of fishing."** *(DEIS, page 4-374)* (ii). **Williams Fork River** The DEIS provides no information or analysis about the quality of the fishing experience in **the Colorado River between 2006 and 2016. It concludes there is "no impact" associated with** the Proposed Action relative to 2016 conditions and no related socioeconomic impacts (DEIS, *page 4-431*) **"No impacts are expected to occur to the quality of the fishing experience along the Williams Fork River as a result of the Proposed Action."** *(DEIS, page 4-374)* In an average year, on the Williams Fork River near the Steelman gage, the DEIS reports anticipated stream flow reductions of 24% (50 to 38 cubic feet per second) between 2006 and 2016 *(DEIS, page 4-406)* and an additional 30% reduction (9 to 6 cubic feet per second) between 2016 and all Project alternatives. *(DEIS, page 4-407)* (iii) **Colorado River** The DEIS provides no information or analysis about the quality of the fishing experience in **the Colorado River between 2006 and 2016. It concludes there is "no impact" associated with** the Proposed Action relative to 2016 conditions and no related socioeconomic impacts *(DEIS, page 4-431)* **"No impacts to fishing on the Colorado River are anticipated."** *(DEIS, page 4-377)* In an average year on the Colorado River at Hot Sulphur Springs, the DEIS reports anticipated stream flow reductions of 30% between 2006 and 2016 *(DEIS, page 4-405)* and an additional 15% reduction between 2016 and the Proposed Action. *(DEIS, page 4-406)* *(iv)* **Blue River** The DEIS provides no information or analysis about the quality of the fishing experience in the **Blue River between 2006 and 2016. It concludes there is "no impact" associated with the** Proposed Action relative to 2016 conditions and presumably no related socioeconomic impacts because socioeconomic impacts on Summit County are not included in the DEIS. **"No impacts are expected to occur to the quality of the fishing experience along the Blue River as a result of the Proposed Action ."** *(DEIS, page 4-437)*. In an average year, on the Blue River, the DEIS reports anticipated stream flow reductions of 22% between 2006 and 2016 and an additional 4% reduction after 2016 due to the Proposed Action. *(DEIS, page 4-86)* 55	would be less than 10% compared to Full Use of the Existing System. Table H-3.32, which compares average monthly flows for Full Use of the Existing System against each of the Moffat Project Alternatives and the No Action Alternative, shows that average, wet and dry average monthly flow changes would be less than 10% in all months for the Colorado River near Kremmling gage. The exception to the downstream extent includes the evaluation of recreation and special status species in the 15-Mile Reach. Resource evaluations were conducted to determine impacts near Kremmling and assess the validity of the downstream study area extent. Results of the resource evaluations based on a comparison against Full Use of the Existing System indicate effects due to the Moffat Project would be negligible to minor along the Colorado River at the Kremmling gage and would continue to diminish downstream with tributary inflows. Therefore, extension of the study area further downstream was not warranted based on the results of the resource evaluations. The resource evaluations were relied on to justify the criteria used to define the downstream extent of the study area. The study area was re-evaluated for the FEIS on a resource by resource basis to determine whether extension of the area was warranted. The need to extend the study area was based on an evaluation of total environmental effects associated with streamflow changes under each of the Moffat Project Alternatives in combination with other RFFAs. Regarding the use of average statistics, please see the response to Comment ID 4721. ***Comment #836-89*** *(ID 4722)**:*** *DEIS Study Period The DEIS study period fails to capture the full range of anticipated changes to hydrologic conditions accurately. The DEIS conclusions are based on predicted hydrologic*

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	b. DEIS Conclusion Errors The DEIS contains no remarks about the relationship between water hydrology, water quality and water temperature to fishing so any conclusion is unsubstantiated, at a minimum. The *Grand County Stream Management Plan* provides extensive technical research regarding the relationships between water hydrology, quality and temperature and environmental flow and recreational flow regimes. DEIS conclusions about the quality of fishing between 2006 and 2016 in the Fraser and Blue rivers are unsubstantiated. There are no remarks about the quality of fishing between 2006 and 2016 for the Williams Fork and Colorado Rivers. The DEIS provides no basis upon **which to reach its "no impact" conclusions about fishing.** Interviews of experienced local anglers conducted as part of the *Grand County Stream Management Plan*, fishing guides and fly fishing retailers indicate that water temperature already curtails fishing on some days and during some times of the day. It is reasonable to anticipate that additional stream flow reductions plus related water temperature increases attributable to the Moffat Project will further threaten the health of fish. The *Grand County Stream Management Report* suggests that that flushing flows are important to a healthy riparian environment and have a beneficial impact on the quality of fishing. *(Tectra Tech, 2008; Coley/Forrest, 2007a)* **c. Environmental Consequences** Further deterioration in the health of fish in the Fraser, Williams Fork, Blue, and Colorado River systems will further diminish the quality of the fishing experience and reduce the number of anglers, who represent an important segment of the summer recreation visitor. In addition to use of the rivers and tributaries by individual anglers, private fishing clubs, and fishing guides, the high-end Elk Trout Lodge relies solely on fishing to attract summer visitors. Others such as Devil**'s Thumb Ranch feature fly**-fishing at a key summer attraction. Reaches of the Colorado and Blue Rivers have received designation as a Gold Medal Water from the Colorado Wildlife Commission. In addition, reaches of the Blue and Colorado Rivers are under consideration for designation as Wild and Scenic Rivers by a council of 4 federal agencies. Reaches of Fraser River, St. Louis Creek and Williams Fork River have received Colorado Merit Water Stream designations from the Colorado Fishing Network. To lose these designations would be a substantial loss to Grand **and Summit counties'** water-based recreation economy. The DEIS does not address whether these designations would be in jeopardy due to the Project or its cumulative effects. **2. The DEIS wrongly concludes that there are beneficial impacts to kayaking and rafting in Grand County and negligible impacts to kayaking and rafting in Summit County.** 56	*changes using the period of record of 1947-1991. As Denver Water concluded in its Aug 28, 2003 Study Period and Verification Period Selection Operating Information memorandum: "The study period selection is important for several reasons. It determines the number and type of extreme hydrologic events which will be simulated and can influence the conclusions drawn from a study…. The study period selected must be representative of the true basin hydrologic conditions, or erroneous conclusions could be drawn from the simulation results." However, the period of record used in the DEIS excludes critical extreme high and low flow conditions observed in the Fraser and Colorado River basin. For example, the DEIS does not accurately portray the five wettest and driest years on record for the Upper Colorado River Basin. The consequences of this are that the DEIS may understate the magnitude and duration of extreme hydrologic events. Table 5 displays the actual five driest and five wettest years on record for various locations in the basin based on gauged data, and highlights the years that are not included in the DEIS/PACSM study period. Table 5 shows that the PACSM hydrology period completely misses one or more of the driest years and the wettest years at nearly every location. By not including the dry years such as 2002 in the PACSM modeling, the DEIS may underestimate the effects of the Project. [SEE SOURCE FILE FOR TABLE 5, DRIEST AND WETTEST YEARS AT SELECT UPPER COLORADO RIVER BASIN LOCATIONS BASED UPON ACTUAL STREAM GAGE DATA.] Not only does the DEIS study period fail to report the driest years on record, it is flawed because it does not indicate whether or not the five driest and five wettest years selected for the analysis reflect the wettest and driest years that will occur under existing conditions or following completion of the Moffat Project. Table 6 displays the total annual volume, calculated using the UPCO tool, in the five wettest and driest years used in the DEIS compared to the*

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	a. **DEIS Conclusions**. The DEIS acknowledges the relationship between stream flow on the Colorado River and Blue River and the suitability for kayaking and rafting. **Kayaking**: The DEIS states that there is a beneficial impact to kayaking on the Colorado River between 2006 and 2016 because the number of days in an average year when stream flows are suitable for kayaking would increase from 84.6 to 98.6 days or by 16.5% *(Page 4-375)*. The DEIS also concludes that between 2016 and the Proposed Action, there would be an additional beneficial impact attributable to additional days suitable for kayaking in an average year (98.6 to 101.2, +2.6%). *(DEIS, page 4-377)* **Rafting**. The DEIS states that although monthly stream flows drop 3% to 15% *(DEIS, page 4-374)*, days suitable for rafting remain the same between 2006 and 2016. Between 2016 and the Proposed Action, the DEIS describes no changes in flow but reports an increase in the number of days suitable for rafting from 107.6 to 108.4). *(DEIS, page 4-376)* **The DEIS acknowledges that between 2006 and 2016 there will be "long term major** impacts to recreatio**nal boating" on the Blue River, including both kayaking and rafting** flows *(DEIS, page 4-378)*. The DEIS also acknowledges that the Proposed Action would have long term adverse impacts to boating on the Blue River, but labels these impacts as **"negligible."** *(DEIS, page 4-378)* b. **DEIS Conclusion Errors** There are significant detrimental impacts to kayaking and rafting (recreational boating) when the impact of the Moffat Project and the Windy Gap Firming Projects are included in the analysis. According to work conducted during the Upper Colorado Wild and Scenic Alternative Management Plan negotiations comparing existing conditions to conditions under the Moffat Project preferred alternative, the number of days suitable for recreational boating **("usable days") at the Colorado River near Kremmling will decrease as shown in the table that** follows. Table 14 compares the number of usable days during the permit season for commercial boating (April – September) under actual existing conditions (stream gage data from 1983-2006) and under the Moffat preferred alternative (modeled with PACSM from 1947-1991 including full build out on East and West Slopes, Moffat Expansion Project, and Windy Gap **Firming Project). The three categories of float boating "experiences" s**hown in the shaded cells are based upon a survey conducted by American Whitewater in 2008 and reflect flow ranges that are acceptable to private and commercial boaters on the Upper Colorado. Each float boating experience is important for maintaining a viable recreational boating industry in Grand County because they provide opportunities for a wide range of private boaters and commercial customers at varying locations and times during the boating season. The greatest reduction in usable days, as a result of full build out, the Moffat expansion, and the Windy Gap Firming project (compared to existing conditions) occurs in the wettest 50% 57	*modeled wettest and driest years under the UPCO PACSM3 (Alternative 1a) scenario. As Table 6 indicates, five wettest and five driest years used to analyze the effects of the Moffat project do not necessarily reflect the driest and wettest years as calculated under the preferred alternative using the UPCO tool. This practice misrepresents the effect of the Moffat project scenarios. [SEE SOURCE FILE FOR TABLE 6, COMPARISON OF DEIS AND UPCO PACSM3 SCENARIO DRIEST AND WETTEST YEARS.] Because the selected study period is not representative of expected hydrologic conditions, its conclusions with regard to the effects from the proposed Project diversions are unreliable.* **Response #836-89:** Regarding extension of the study period to include 2002 please see the response to Comment ID 4743. The PACSM study period is representative of expected hydrologic conditions. Table 5 referenced in the comment shows that 1983 and 1984, which are included in the PACSM study period and in the wet year average, were the two wettest years at almost all locations shown in the table. Table 5 also shows that at each location at least one and often two of the five driest years are included in the PACSM study period. Therefore, the DEIS includes information for years that are reflective of the some of the driest and wettest conditions that have occurred in the past. The PACSM study period does not have to include all of the five driest and wettest years at each location shown to accurately characterize hydrologic effects in dry and wet years. Averaging the five wettest and driest years as opposed to selecting the single wettest and driest year is a reasonable approach for evaluating hydrologic effects under wet and dry conditions. For example, the average of the five driest years captures a broader range of flow conditions and

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	of years. In the wettest years, the usable days lost fall in the standard and high water experience categories, which are the experiences that commercial and private boaters seek out during years of high flow. For example, in the wet typical years, approximately 50% of the standard experience usable days will be lost in the future compared to the actual existing conditions. Furthermore, in wet typical years, the majority of the reduction in usable days is experienced during May, June, and July which represent the months during which commercial outfitters often serve the most customers. A loss of boating opportunities for even a few days may represent a significant loss of income for commercial outfitters that have historically relied on streamflows appropriate for a wide customer base. While the total number of lost usable days in the driest 25% of years is less than the total reduction in wetter years, the impact to the boating community will be large because in dry years and during the late season when flows are low, the Upper Colorado River is one of the few boatable locations in Colorado. TABLE 14 COMPARISON OF NUMBER OF USABLE DAYS UNDER ACTUAL EXISTING CONDITIONS AND THE MOFFAT PROJECT (PROPOSED ALT. (MODELED FUTURE CONDITIONS) 1. Wettest 25% Years - Median Number of Usable Days *Low Water Experience: 700-1,300 cfs* Apr / May / Jun / Jul / Aug / Sep / Total Actual Current: 0.5 / 0 / 0 / 0 / 9.5 / 26.5 / 36.5 Modeled Future: 20 / 6 / 0 / 1 / 23 / 27 / 77 Difference: 20 / 6 / 0 / 1 / 14 / 1 / 41 *Standard Experience: 1,300-4,000 cfs* Apr / May / Jun / Jul / Aug / Sep / Total Actual Current: 20.5 / 21 / 8 / 16.5 / 21.5 / 0 / 87.5 Modeled Future: 0 / 22 / 13 / 11 / 5 / 0 / 65 Difference: -21 / 1 / 5 / 9 / -17 / 0 / -23 *High Water Experience: 4,000-7,400 cfs* Apr / May / Jun / Jul / Aug / Sep / Total Actual Current: 0 / 8 / 14.5 / 7.5 / 0 / 0 / 30 Modeled Future: 0 / 0 / 11 / 2 / 0 / 0 / 13 Difference: 0 / -8 / -4 / -6 / 0 / 0 / -17 2. Wet Typical 25%-50% Years - Median Number of Usable Days *Low Water Experience: 700-1,300 cfs* Apr / May / Jun / Jul / Aug / Sep / Total Actual Current: 23.5 / 5.5 / 2 / 16 / 22 / 26.5 / 95.5 Modeled Future: 13 / 16 / 12 / 18 / 25 / 29 / 113 Difference: -11 / 11 / 10 / 2 / 3 / 3 / 18 *Standard Experience: 1,300-4,000 cfs* Apr / May / Jun / Jul / Aug / Sep / Total Actual Current: 1.5 / 25 / 28 / 15 / 9 / 0 / 78.5 Modeled Future: 0 / 8 / 16 / 11 / 5 / 0 / 40 Difference: -2 / -17 / -12 / -4 / -4 / 0 / -39 *High Water Experience: 4,000-7,400 cfs* 58	diversions that could be expected to occur during a dry year and better represents a typical dry year. For example, Moffat Project diversions in a dry year following a wet year may be different than a dry year following a dry year. These differences would be reflected in a dry year average that includes five years with varying hydrologic conditions in preceding years. Comparison of flows for the single driest year or the average of the five driest years would not change the predicted impacts to flows as a result of the proposed Moffat Project. ***Comment #836-86*** *(ID 4721):* *Use of Average Statistics The DEIS use of average statistics to measure flow depletions misrepresents the Project's adverse effects on the environment. The presentation of hydrologic effects using monthly averages obscures and minimizes the actual variations and extremes that the Moffat Project will cause. For example, actual recorded original Moffat Tunnel diversions show that the minimum and maximum diversions since 1984 are 24,666 acre feet per year and 92,226 acre feet per year, respectively, showing a dry-to-wet year range of over 67,500 acre feet per year (73% of the maximum diversion). Whereas Table H-7.2 and H-7.3 show that the average diversions in dry and wet years are currently 52,739 acre feet per year and 57,343 acre feet per year, respectively, showing a dry-to-wet year range of only 4,600 acre feet per year (8% of the maximum diversion shown). Table 3 also shows the differences during the principal diversion months between the modeled average flow in dry or wet years compared to actual streamflow during dry and wet years.). The effects of using the average of the five wettest or driest years on the Fraser River near Winter Park rather than displaying the full range of streamflows in a dry or wet year is illustrated in the detailed Supplementary Tables. For instance, modeled current conditions (using UPCO) in May of the five wettest years range from monthly average values of 8 to 109 cubic feet per second.*

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		However, the average of the five wettest years is equal to 33 cubic feet per second. The effects of the predominant use of averages on the DEIS environmental assessment are further described in Section II.B below. **Response #836-86:** Regarding the use of average statistics, the resource evaluations did not rely solely on average statistics to assess effects on resources. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly and annual summaries of stream flows, diversions, reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with each Moffat Project alternative. Daily data were used in resource assessments where the magnitude or value of the resource is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily data was utilized to evaluate effects on several resources, including surface water, aquatic resources, stream morphology, recreation, floodplains, riparian and wetlands areas, wildlife and special status species, and water quality (see DEIS Section 4.1, subheading, Use of Daily and Monthly PACSM Data for Resource Evaluations). Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes (see DEIS Appendices H-4, H-5 and H-6). Regarding comparisons made in the comment to historical Moffat Tunnel diversions and historical streamflows shown in Table 3 of the Joint Rebuttal Report, please see the response to Comment ID 4743.

	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	0	8	14.5	7.5	0	0	30
Modeled Future	0	0	0	0	0	0	0
Difference	0	-8	-15	-8	0	0	-30

TABLE 14 CONTINUED

3. Dry Typical 50%-75% Years - Median Number of Usable Days

Low Water Experience: 700-1,300 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	17	9	11	24.5	30	28.5	120
Modeled Future	9	11	13	24	29	21	105.5
Difference	-8	2	2	-1	-1	-8	-15
Standard Experience: 1,300-4,000 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	1.5	7.5	11.5	0	0	0	20.5
Modeled Future	0	1	3	0	0	0	3.5
Difference	-2	-7	-9	0	0	0	-17
High Water Experience: 4,000-7,400 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	0	0	0	0	0	0	0
Modeled Future	0	0	0	0	0	0	0
Difference	0	0	0	0	0	0	0

4. Driest 75% Years - Median Number of Usable Days

Low Water Experience: 700-1,300 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	7.5	3.5	1.5	20.5	31	21.5	85.5
Modeled Future	7	2	0	16	23	22	68.5
Difference	-1	-2	-2	-5	-8	0	-17
Standard Experience: 1,300-4,000 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	0	0	0	0	0	0	0
Modeled Future	0	0	0	0	0	0	0
Difference	0	0	0	0	0	0	0
High Water Experience: 4,000-7,400 cfs							
	Apr	May	Jun	Jul	Aug	Sep	Total
Actual Current	0	0	0	0	0	0	0
Modeled Future	0	0	0	0	0	0	0
Difference	0	0	0	0	0	0	0

The years in both the actual current and modeled future datasets are ranked based on total annual volume, based on the operational water year defined during the Wild and Scenic Alternative Management Process.

Float boating experience categories (low water, standard, and high water) are based on a 2008 survey conducted by American Whitewater which combines float boating preferences.

Differences are equal to modeled future values less actual current values. A negative difference indicates that usable days decrease under future modeled conditions. Positive values indicate that there are more usable days than under the future modeled condition.

Actual current data is based on the Colorado River near the Kremmling gage; data from 1983 2006.

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	Modeled future data is based on Denver Water's PACSM modeling (1947 1991) provided by Denver Water during the Upper Colorado Wild and Scenic Alternative Management Plan. On the Blue River, the Proposed Action will result in decreases in the number of days that fall within the minimum and optimum flow ranges as compared to Full Use (2016). Based on averages over the entire 45-year study period the reduction in usable days for boating is about one day per year. However, the use of averages in this context obscures the fact that in any given month or year, decreases in flows may have a significant impact on the number of usable days. Furthermore, as previously mentioned a loss of boating opportunities for even a few days may represent a significant loss of income for commercial outfitters. The use of averages in the DEIS also obscures the actual impacts to recreation flows on the Blue and Colorado Rivers. For example, although on average the number of days with minimal recreational flows on the Blue River would be expected to increase by 4 days, the number of days with optimum flows would decrease by 1.2 days, and the number of days with maximum flows would decrease by 2 days, in any given year the impacts may be much greater. In 1966, the Moffat Project would have reduced the number of days on the Blue River with minimal recreational flows from 6 to none, and in 1991 the number of days with maximum flows would have declined from 11 to none as compared to Full Use (2016). flows would have declined from 11 to none as compared to Full Use (2016). The DEIS (incorrectly) incorporates stream flow changes due to the proposed Windy Gap Firming Project in the 2016 conditions. According to the Windy Gap Firm Project DEIS, this Project and its cumulative effects trigger streamflow reductions and related reductions in days suitable for kayaking and rafting of up to 43% on reaches of the Colorado River. (*WGFP DEIS, 2008, Tables 3-124, 3-126, 3-127, c-128, c-129 and 3-130)*. c. **Environmental Consequences** There is a potential impact on summer visitors if kayaking and rafting is curtailed due to stream flow. This is particularly important to western Grand County where the number of tourist-related options is limited. The Windy Gap Firming Project acknowledged this and offered to curtail its diversion activity during the important Big Gore Days race event on the Colorado River, if streamflow conditions are below a pre-set cubic-feet-per-second level. *(WGFP DEIS, 2008, Page 3-290)* **F. LAND USE** **1. The DEIS excludes agricultural impacts in Grand and Summit counties.** a. **DEIS Conclusion** The DEIS does not address agricultural impacts in Grand or Summit County at all. It addresses no land use impacts in Grand or Summit County. 60	It is appropriate to select representative dry and wet years based on natural or virgin flow hydrology. Table 1 referenced in the comment shows that 1983 and 1984, which are included in the PACSM study period and in the wet year average, were the two wettest years at almost all locations shown in the table. Table 1 also shows that at each location at least one and often two of the five driest years are included in the PACSM study period. Therefore, the DEIS includes information for years that are reflective of some of the driest and wettest conditions that have occurred in the past. The PACSM study period does not have to include all of the five driest and wettest years at each location shown in Table 1 to accurately characterize hydrologic effects in dry and wet years. Historical natural flows, which are based on historical gage records, represent the best available information to estimate hydrologic effects associated with the Project. The probability of similar hydrologic conditions occurring in the future is unknown. The resource evaluations did not rely solely on monthly and annual averages. Please also see the response to Comment ID 5199. The comparison of average annual flows using PACSM output completed for the UPCO study (2003) under Scenario 3 is flawed. The five driest and wettest years from the PACSM study period were selected based on the natural flow or virgin flow at the USGS gage Colorado River near Kremmling whereas the five driest and wettest years from the UPCO Scenario 3 output were selected based on modeled flows. It would be more appropriate to compare averages for the same five dry and wet years. For example, the average annual flow at the Fraser River near Winter Park in 1961 based on UPCO output was 4,549 AF versus 4,520 AF based on PACSM output for Alternative 1a. Therefore, to accurately compare averages at the locations shown in Table 1, the same five years

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	b. DEIS Conclusion Errors Based on interviews with a sampling of Grand County ranchers and research conducted as part of the *Grand County Stream Management Plan,* some ranchers who use the river, creek and tributaries in the Fraser Valley upstream from Granby for agricultural purposes report problems with their irrigation ditch operations due to low flows not only during dry years but also during average years. Additional stream flow reductions would further compromise the agricultural irrigation pump intake systems, perhaps to failure in some situations. Significant drops in streamflow and related increases in temperature hamper or prohibit irrigation activity either because there is inadequate pressure or because dead fish and algae clog the irrigation gate network. Additional Moffat Project diversions will trigger lower stream flows that will exacerbate an already troublesome condition. c. Environmental Consequences Irrigation ditch problems and failures lead to additional costs of repair and can result in poor crop results which impact agricultural revenues. Agriculture is a valued cornerstone of the Grand County economy. **2. The DEIS excludes consideration of the relationship between rivers and tributaries and resort developments.** a. DEIS Conclusion The DEIS provides no discussion of land use in its sections on affected environment, environmental consequences or socioeconomic effects. There is no mention of the relationship between the rivers and tributaries and resort developments in Grand County. b. DEIS Conclusion Errors There are resort developments in Grand County that inextricably rely on the Fraser River, the **Colorado River and their tributaries. Devil's Thumb Ranch (Fraser), Winter Park Resort** (Fraser River), Elk Trout Lodge (Colorado River) and others rely on healthy and visually appealing streamflow to enhance the visitor experience. Elk Trout Lodge uses the Colorado River as its primary summer attraction as it is a fly fishing resort. Intrawest designed its redevelopment of the Winter Park ski area base to focus on the beauty of the Fraser River as it flows through the dev**elopment. Devil's Thumb promotes its "fly-fishing haven" as a key** summer attraction. c. Environmental Consequences As described above, further reductions in streamflow, deterioration in water quality and increases in water temperature may materially hamper the quality of the fishing experience as well as visual and auditory enjoyment of the rivers and tributaries and therefore deter occupancy or sales activity at these signature resorts in Grand County. 61	(1954, 1976, 1961, 1965 and 1955) selected for UPCO data should be compared against an average of Moffat Project data for the same five years. However, there would still be differences even if the years selected coincide due to the changes made to PACSM since the modeling was completed for UPCO. The model study period used in the DEIS (from 1947 through 1991) provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts. The potential of extending the study period and/or using additional periods for comparative analyses was considered in relation to whether these alternative hydrologic inputs would change conclusions regarding the yield of the Moffat System and/or change conclusions related to effects on hydrologic and other resource areas. With regard to inclusion of more recent hydrology, Denver Water would not divert additional water due to the proposed Moffat Project in drought years like 2002 because Denver Water would have already diverted the maximum amount of water physically and legally available under its existing water rights without additional storage in its system. Denver Water's analysis also concluded that, for Denver Water's system, the mid-1950's drought is a more severe drought period than the recent drought. In other words, given full-use water demands, supplies, and facilities, there would be less water in Denver Water's storage at the end of the 1950's drought than at the end of 2002. The model study period used in the DEIS also addressed the carry-over and recovery effects of additional Denver Water diversions in wet years following dry years like 2002 and 2003. The DEIS study period includes several series of dry years followed by wet years, which illustrate the effects of increased diversions to refill storage. For example, the DEIS study period includes the mid-1950's drought followed by 1957 (a wet year), 1963 and 1964 (dry years) followed by 1965 (wet year), and 1981 (dry year) followed by

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	G. VISUAL RESOURCES 1. **The DEIS provides an inadequate and incomplete analysis of the relationship between visual resources and the visitor experience.** a. **DEIS Conclusions** The DEIS states that the Fraser, Williams Fork, Blue and **Colorado rivers "occur in scenic or** visually sensitive locations. The setting in which the stream is viewed is equally important as **the stream flow level when determining visual preferences."** *(DEIS, page 3-299)* The DEIS acknowledges the relationship of the visual experience of rivers in mountain communities dependent **on visitation but "concludes" with a dismissive statement that river water levels fluctuate and visitors expect that. "As a result, a stream is a dynamic system that rarely** remains static and the viewer has an expectation of observing change over the course of the **seasons."** *(DEIS, page 3-299)* There is no further discussion of whether the significant reductions in streamflow from the native condition to existing conditions (2006), from existing **to 2016 "baseline" conditions and from 2016 "baseline" condi**tions to the Proposed Action might affect visitors. There is no follow-through discussion in the socio-economic section. The DEIS concurs that there is an adverse impact on the Fraser from a visual perspective, and states that substantial changes on the Williams Fork, Blue, and Colorado River are minor, **limited, or "below perceptible change."** b. **DEIS Conclusion Errors** The visual resources analysis is confined to perception due to changes in stream flow. There is no mention of water clarity or the related riparian environment in the Fraser, Williams Fork, Blue or Colorado River and their tributaries or water clarity impacts on Grand Lake. The DEIS uses a study in from the Cheoah River in North Carolina to correlate viewer preferences and streamflows. The study concludes that viewers react adversely to both low stream flows and higher streamflow conditions. *(DEIS, page 4-404)* The DEIS states that low flows occur in the winter and spring months, and since the Moffat project would have minimal impact during periods of low flow, the impact on viewers would be minor. **"In** general, the Moffat Project would have only a minor effect on flow levels during periods of **low flows, when streams are most sensitive to visual change."** *(DEIS, page 4-404)* There is ample information in the DEIS and emphasized elsewhere in this Report, that there are significant stream flow reductions between 2006 and 2016 and additional stream flow reductions between 2016 and 2030 during each summer month, when viewers are enjoying streamflow. **The conclusion that viewer impact would be "minor" is not substantiated.** **Throughout the analysis, the author uses the phrase" within the normal range of seasonal and annual variability" to claim that most observers would not notice. The DEIS** states that it 62	several wet years in the mid-1980's. These sequences of years allow for an evaluation of impacts associated with diverting additional water in wet years following dry years. The model study period is suitable for estimating hydrologic effects associated with the EIS alternatives for both direct effects and cumulative effects because it includes a broad range of average, wet, and dry years, and sequences of years that include dry years followed by wet years. Extension of the modeling period and consideration of tree-ring data to include additional dry years would not substantially change the range of hydrologic conditions or the predicted impacts to flows as a result of the proposed Moffat Project. While tree ring-based reconstructions of Colorado River flows may show greater hydrologic variability than that reflected in the gaged record, particularly with respect to drought, the inclusion of more severe dry years in the study period would not change the evaluation of hydrologic impacts due to the Moffat Project because the Moffat Project would not increase diversions in these years over the diversions that would take place without the Project. In summary, modifications to the modeled study period and the use of paleo-hydrology is not warranted. Denver Water's Conceptual Mitigation Plan is included in FEIS Appendix M. Where required, mitigation will be prepared as part of a Section 404 Permit. The Current Conditions (2006) scenario does not presented an idealized depiction of current hydrology that would maximize water demands and water diversions throughout the PACSM study period. The Full Use of the Existing System scenario demonstrates that Denver Water could meet at higher average annual demand (345,000 AF/yr) and divert additional water throughout its system using

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	would be "difficult for most observers to determine if flow variations are naturally occurring or are attributed to the Moffat Project." *(DEIS, page 4-405)* These statements are not substantiated. c. **Environmental Consequences** Further reductions in the visual resources of the Fraser, Williams Fork, Blue and Colorado rivers and tributaries with high visitor visibility or which are significant assets to adjacent visitor activities or real estate uses may decrease visitation to Grand and Summit counties. To both Grand and Summit **County, tourism is a "basic sector" industry**. H. CULTURAL RESOURCES a. **DEIS Conclusion** The DEIS includes no mention of cultural resources in Grand County, provides no reference as to who was contacted in Grand County regarding cultural resources, and lists no team expert with a cultural resource background *(DEIS, Chapter 6)*. b. **DEIS Conclusion Error** If an investigation had occurred, then the analyst would have discovered that Grand County has a rich and diverse cultural history in the Upper Fraser Valley that is directly linked with the water resources of the Fraser River and its tributaries. *(Coley/Forrest, 2007a)* c. **Environmental Consequences**. There will be negative consequences to the diversity of cultural resources linked to water. 63	its existing system infrastructure and water rights without any additional storage on-line in the Moffat System. It is not appropriate to compare Current Conditions (2006) model data to historical data for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. For example, it is inaccurate to evaluate the effects of future diversions on flows in the Colorado River at the Hot Sulphur Springs gage based on a comparison with historical flows at that gage because historical flows prior to 1985 do not include the effects of the existing WGFP, which came on-line that year. The purpose of the Current Conditions (2006) scenario is to represent hydrologic conditions that would occur over the 45-year study period under Current Conditions, including facilities, operations, consumptive and non-consumptive water rights, instream flow rights, demand levels, operating rules, and other water management considerations and preferences throughout the Upper Colorado River Basin. The Current Conditions (2006) scenario is not intended to replicate historical flows at USGS gages and diversions at the Moffat, Gumlick, and Roberts tunnels as suggested in the comment. The Current Conditions scenario accurately depicts current level of diversions and does not understate the incremental change that would occur with a Project on-line. It is not appropriate to compare Current Conditions (2006) model data to historical data to evaluate effects for several reasons. The periods compared may be of different lengths and they may be different hydrologically (e.g., more wet or dry overall). In addition, demands have changed considerably over

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	III. CUMULATIVE IMPACTS A. AQUATIC RESOURCES 1. **The DEIS fails to evaluate cumulative impacts of past, current and reasonably foreseeable future conditions on aquatic resources.** a. **DEIS Conclusion** "**In West Slope streams, all of the reasonably foreseeable water**-based actions were included **in the Project modeling except for the reduction in the Shoshone Power Plant calls** … **Slight,** infrequent reductions in flow during the spring, when there is usually sufficient water to sustain fish and invertebrates, would likely have no additional cumulative effect on aquatic **resources as a result of the Project.**" *(DEIS, page 5-47)* b. **DEIS Conclusion Errors** **The DEIS's cumulative impacts analysis does not ev**aluate the impacts large transmountain **diversions, such as Denver Water's original Moffat Tunnel** and the Roberts Tunnel, have had on the aquatic resources of the Fraser, Williams Fork, Blue and Upper Colorado River basins. The DEIS acknowledges that transmountain diversions have had a profound impact on the hydrologic regime of the rivers. Yet, it fails to evaluate the impacts these hydrological changes have had on aquatic resources, or the cumulative effects incremental depletions from the proposed Project and other reasonably foreseeable actions will affect those resources. Data to assist in this analysis is available. For example, changes in macroinvertebrate and native fish (sculpin) population and fish biomass are available for the Colorado River. Manmade disturbances to streams resulting from transmountain diversions in the Upper Colorado, Fraser and the Blue Rivers have been significant. The DEIS discloses that average annual flows in the Fraser River at Winter Park gage have been reduced from 32,080 acre feet per year prior to 1935 when Moffat first came on line to just 12,890 acre feet since 1935; a reduction in flow of 60%. In the Colorado River, the DEIS discloses that native average annual flows at the Colorado River at Windy Gap have been reduced by 62% by Moffat, Colorado – Big Thompson, and Windy Gap Projects from the period from 1985 through 2004. Flows at the Colorado River at Hot Sulphur Springs gage have been reduced from 528,730 acre feet per year prior to 1935 to just 229,030 acre feet per year (a 57% reduction) from 1936 through 1994 after Moffat, C-BT and Windy Gap began diverting in 1936, 1950, and 1985, respectively. *(DEIS, page 3-38)* Figure 1 illustrates the magnitude of historic impacts to native flows at the Fraser River near the Winter Park gage. Figure 2 illustrates the magnitude of historic impacts to native flows at the Colorado River gage at the Hot Sulphur Springs gage. Figure 3 shows very similar hydrologic depletions for the Blue River near Dillon. In spite of the magnitude of depletions of native flows, the DEIS fails to evaluate the impacts such historic diversions have had on the affected streams, or the effect cumulative, incremental diversions due to the Moffat 64	the course of the PACSM study period, certain facilities and reservoirs were not in operation for the entire study period, and river administration and Project operations have changed. One would expect potentially large differences when comparing model results with historic records. Modeled Current Conditions (2006) Moffat Tunnel diversions (63,799 AF/yr) are higher than average annual Moffat Tunnel diversions for the period from 1984 through 2006 because Current Conditions diversions reflect meeting an average annual demand for Denver Water of 285,000 AF/yr, whereas the average annual demand met during the period from 1984 through 2006 was less. In addition, there are likely differences in the averages because the periods compared are different lengths and may be hydrologically different. It is possible that the period from 1984 through 2006 is wetter overall than the period from 1947 through 1991, which could also partially explain why the historical average is lower. These reasons also apply to differences in Current Conditions (2006) versus historical Gumlick Tunnel and Roberts Tunnel diversions and flows in the Fraser and Colorado rivers. For similar reasons, Current Conditions (2006) modeled streamflows in the Fraser River should not be compared with historical data. At some locations in the Fraser River Basin, average monthly dry year streamflows for Current Conditions are higher than actual streamflows in 2002 for several reasons. The average monthly dry year streamflow is an average of the five driest years during the study period whereas 2002 is the driest year on record in the Fraser River Basin. Furthermore, bypass flows were reduced in 2002 whereas bypass flows were not reduced in two of the five years selected for the dry year average because the agreement to reduce bypass flows was not in effect until 1970. As discussed above, one would expect potentially large differences when comparing model flows with historic records. The comparison of flows at the

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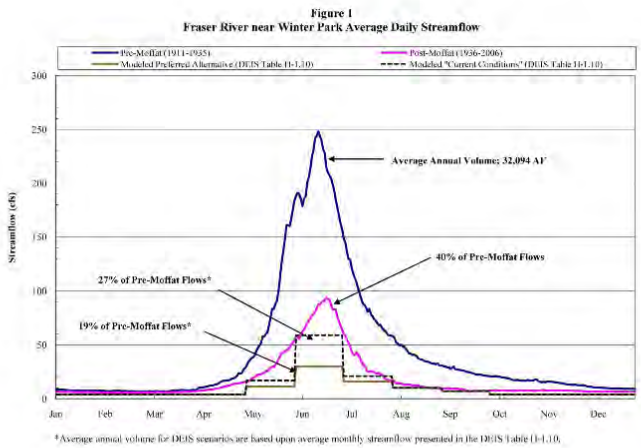
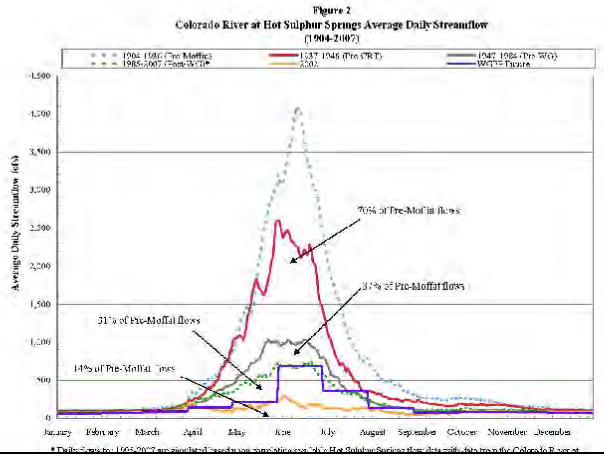
	Project and other reasonable foreseeable projects like WGFP, will have on the streams' resources.   	St. Louis Creek gage shown in Table 3.1 of BBA's letter is an excellent example of why modeled flows should not be compared to historical flows to assess hydrologic effects. Denver Water's diversions in the St. Louis Creek Basin did not commence until 1956. As a result, historical flows in 1954 and 1955 shown in Table 3.1 at the St. Louis Creek gage are considerable higher in May, June and July than in 1963, 1977, and 1981. This explains to a large degree why monthly averages of historical flows in 1954, 1955, 1964, 1977, and 1981 are much higher than historical monthly average flows in 2002 and the modeled dry year average monthly flows for Current Conditions and Full Use of the Existing System. Furthermore, historical flows in 1954 and 1955 are not reflective of Current Conditions since they do not reflect the effects of the existing Moffat Collection System diversions from St. Louis Creek. If modeled flows with the proposed Moffat Project on-line were compared to historical flows in 1954 and 1955, the differences would reflect all the changes that have occurred since that time and not just the effects of the proposed Moffat Project. Similar to dry years, average monthly wet year streamflows for Current Conditions are lower than actual streamflows in 1984 at some locations in the Fraser River Basin because the average monthly wet year streamflow is an average of the five wettest years during the study period, whereas 1984 is the wettest year on record in the Fraser River Basin. In addition, the demand met in the five wettest years under Current Conditions (2006) is different than the demand met in 1984. Differences in the timing of filling Gross Reservoir can also result in differences in Current Conditions average wet year monthly flows versus historical flows in 1984. Modeled Current Conditions average annual flows in the Colorado River below Windy Gap are lower than historical average annual flows from 1984 through 2008 primarily because the average annual demands for several entities

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	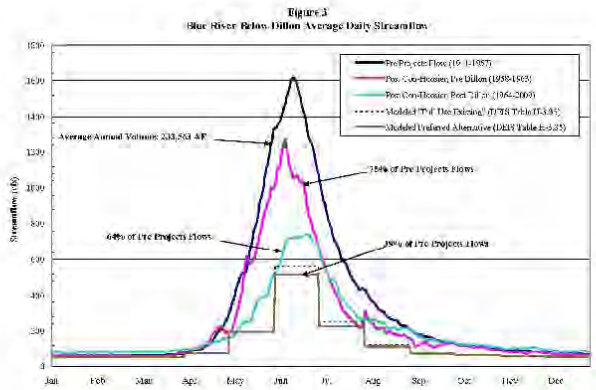 Figure 3 Blue River Below Dillon Average Daily Streamflow Moreover, the DEIS evaluates only impacts between some future condition described as Full Use (2016) and the Moffat Project (2030). It does not evaluate impacts between Existing Conditions (2006) and Full Use (2016). As such, the DEIS does not assess the condition of the existing aquatic environment today. It simply assumes that the condition of the aquatic environment will be healthy in 2016, and then it analyzes only the incremental impact of its proposed depletions between 2016 and 2030. If the Fraser, Blue, and Colorado rivers are to avoid a death of 1,000 cuts, future changes must be placed in the broader context of the alterations that have occurred to date and will occur between now and 2016. Ecologists have long recognized that many ecosystems exhibit nonlinear behavior in response to human perturbations. A continuous change in an independent variable (e.g., a continuous decline in stream flow) may not produce smooth changes in a response variable (e.g., fish productivity). Instead, if a threshold is crossed, the system may flip from one capable of **supporting trout to one that cannot. The term "ecological resilience" has been used to describe** the amount of disturbance required to propel the ecosystem across a threshold and into an alternative stable state *(Holling 1996)*. Riverine ecosystems are strongly affected by external factors like stream flow, sediment, and temperature *(Groffman et al. 2006)*. The quantity and timing of stream flow are critical components responsible for maintaining the ecological integrity of river ecosystems *(Poff et al., 1997)* **and stream flow is often considered a "master variable" that limits the distribution and abundance of riverine** *species (Resh et al. 1988)*. Because many ecosystems, such as the Fraser, Blue, and Colorado rivers, may exhibit hystereses, the change required to restore the ecosystem may need to be much greater than the 66	upstream of this location, including Denver Water and Windy Gap, have increased due to growth and are higher under Current Conditions. As a result, Denver Water's diversions and Windy Gap diversions under Current Conditions are higher on average, resulting in lower modeled flows below Windy Gap on average than historically occurred. Dry year flows are not misrepresented and the impacts of the Project are not understated in a dry year. There would be no additional diversions due to the Moffat Project in the single driest year in the study period as well as the average of the five driest years. A combination of daily and monthly hydrologic data was used for evaluations of resources dependent on flows or reservoir storage contents and levels. Average monthly and annual summaries of stream flows, diversions, reservoir contents, surface elevations, and surface areas for average, wet, and dry conditions were used to support general characterizations of hydrologic changes associated with each Moffat Project alternative. Daily data were used in resource assessments where the magnitude or value of the resource is especially sensitive to daily hydrologic changes and where the use of average, wet, and dry monthly values would mask the severity of the effects on those resources. Daily data was utilized to evaluate effects on several resources, including surface water, aquatic biological resources, stream morphology, recreation, floodplains, riparian and wetlands areas, wildlife and special status species, and water quality (see DEIS Section 4.1, subheading, Use of Daily and Monthly PACSM Data for Resource Evaluations). Daily data were used to generate flow duration curves and daily hydrographs, and to determine the frequency and magnitude of daily flow changes (see DEIS Appendices H-4, H-5 and H-6).

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	change that produced the change in state. The best known examples of this phenomenon are from lakes where continuously adding nutrients has little impact on water clarity before a threshold is crossed and the lake flips from a clear-water state to a cloudy, phytoplankton-dominated state *(Scheffer and Carpenter 2003)*. Restoring these lakes frequently requires not only ending the input of nutrients, but removing much of the nutrients that have accumulated in the lake. Thus, the challenge for managers is to recognize the existence of such a threshold before it is crossed. Not only does the DEIS fail to recognize the potential for these thresholds, but by evaluating cumulative impacts as the change from existing conditions rather than the change from the native state, it fails to acknowledge the likelihood that the historic reductions in flow have already pushed the river close to any existing threshold. c. **Environmental Consequences** The critical question the DEIS must answer is not how much of a change will the Moffat Project and other future projects will have on the existing conditions of the Fraser, Blue and Colorado rivers, but whether these rivers can withstand further large scale depletions without being pushed into an alternative state, one that cannot support healthy fish populations and other aquatic life. This question is critical to evaluating the impact of future projects and has not been asked. Additional reductions in stream flow quantity and changes in stream flow timing caused by the Project have the potential to fundamentally alter how the Colorado River ecosystem functions. Potential non-linear responses to the continued reduction in stream flow have not been considered in the DEIS, and this is a significant omission. B. RECREATION, LAND USE, VISUAL RESOURCES AND CULTURAL RESOURCES 1. **The analysis on recreation, land use, visual resource and cultural resources is inadequate because it lacks rigor and improperly refers the reader to prior DEIS sections where cumulative impacts were explicitly excluded.** a. **DEIS Conclusions** The DEIS includes qualitative information about two projects included in the cumulative **effects analysis that affect the West Slope. They are the reduction of Xcel Energy's Shoshone** Power Plant Call, and the 10,825 Water Supply Alternatives. *(DEIS, Table 5-2, page 5-6)* ▪ **Recreation**. The DEIS sta**tes, "The cumulative effects of water**-based actions on river segments are incorporated into the direct and indirect impacts discussion in Section 4.13, **Recreation."** *(DEIS, page 5-49)* ▪ **Visual Resources**. **"The cumulative effects of water**-based actions on visual resources of the affected river segments are incorporated into the direct and indirect impacts discussion **in Section 4.15 Visual Resources."** *(DEIS, page 5-52)* 67	Averaging the five driest years as opposed to selecting the single driest year is a reasonable approach for evaluating hydrologic effects under dry conditions. The average of the five driest years captures a broader range of flow conditions and diversions that could be expected to occur during a dry year and better represents a typical dry year. For example, Moffat Project diversions in a dry year following a wet year may be different that a dry year following a dry year. These differences would be reflected in a dry year average that includes five years with varying hydrologic conditions in preceding years. The driest year, could be the year with the lowest total natural flow during the runoff period which extends from April through August, or it could be the year with the lowest total annual natural flow, or depending on the resource it could be the year with the lowest natural flow in a specific month. Furthermore, conditions may be more or less dry depending on the location selected. Therefore, the approach selected to average the five driest years on based on the estimated natural flows at the USGS gage, Colorado River near Kremmling, takes into account the spatial and temporal variability in "dry conditions" that can occur. Even if one of the five dry years was selected for evaluation of impacts, the predicted impacts to flows as a result of the proposed Moffat Project in a dry year would not change since there would be no additional diversions associated with the Moffat Project in any of the five dry years included in the "average dry year." Differences between Denver Water's records of Moffat Tunnel flows at the East Portal versus records maintained by the DWR are most likely due to gage height calibration corrections and shift adjustments to the standard 15-foot Parshall flume rating. The State and DWR operate their own data recording devices at the gage. Occasionally, operational conditions would cause the flume to deviate from its theoretical stage-discharge

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	▪ **Land Use, Cultural and Socioeconomics.** No information is provided in the DEIS. The DEIS c**oncludes that most of the "non-minor" cumulative effects are in Grand County.** These include moderate effects on surface and ground water tributaries, fish resources, and recreational boating. **b. DEIS Conclusion Errors** The DEIS analysis of cumulative effects is inadequate because it lacks rigor; it provides only qualitative information about the two projects included in the cumulative effects analysis. To review impacts associated with recreation and visual resources, it improperly refers the reader back to the sections where cumulative impacts were explicitly excluded. The methodology is faulty because the Windy Gap Firming Project, a project in the permitting phase with a significant impact on the Colorado River, is presented as part of the 2016 **"baseline" condition, not part of the cumulative effects analysis**. **c. Environmental Consequences** The methodological error understates the impact of the Moffat Project in all areas of analysis. C. MOUNTAIN PINE BEETLE INFESTATION **1. The DEIS fails to evaluate acknowledged, potential impacts from the mountain pine beetle infestation.** **a. DEIS Conclusions** The DEIS recognizes that pine beetle infestation and pine beetle killed trees may have implications for the Fraser, Blue and Colorado river watersheds such as forest losses, vegetation community changes, increased wildfire risk, and changes in runoff, sedimentation and erosion. (*DEIS, pages 4-19, 5-47*). **It also acknowledges that "Numerous studies have** been conducted on the relationship between climate change and water resources in the west **and that "[m]ost climate change models project that temperatures will continue to rise in the West". (***DEIS, page 5-34)* The DEIS states that there may be both decreased sediment and erosion potential from increased ground cover and increased sediment and erosion potential from forest fires fueled by dead timber. *(DEIS, pages 4-19, 5-47)* While acknowledging the relationship between pine beetle infestation and impacts on sedimentation, the DEIS concludes that: ▪ Sediment transport changes due to a forest fire would return to equilibrium over time *(DEIS, page 4-21);* 68	relationship. At the end of the water year, DWR staff take all available data collected and make adjustments to daily mean flows by smoothing the application of any gage height calibration corrections and shift adjustments from gage visit to gage visit. This can cause differences between DWR and Denver Water records of flows recorded for the Moffat Tunnel at the East Portal. The comment mentions UPCO output for Scenario 3. Use of UPCO output is ineffective for comparison purposes in the Moffat EIS. The UPCO simulations were developed nearly 10 years ago and contained a different basis for the existing system, a different proposed project, different demands, and many other dissimilar conditions. Subsequent to the UPCO modeling effort, the Corps and its consultants conducted a thorough review of PACSM for use in the Moffat EIS. As a result of that review, Denver Water made numerous improvements to the model. These include changes to estimates of natural streamflow, water rights and agreements, system operations, physical system capacity, return flow timing and rates, and demands. Given these changes and improvements it would be nearly impossible to quantify the specific causes for any given difference in results between UPCO and the Moffat EIS simulations. This type of comparison is unnecessary since the review of Moffat System hydrology should rely on Moffat EIS simulations, and not outdated UPCO output. The comment incorrectly states that Denver Water has only reduced bypass flows once in the winter of 2002/2003. Bypass flow reductions have occurred several times in 1975, 1977, 1980, 2002, 2003, and 2004. FEIS Chapter 4 was revised to provide additional information on bypass flow reductions including the time of year and at which location bypasses would be reduced and potential impacts on water providers attributable to future bypass reductions. In addition, FEIS Chapter 4 was revised

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	▪ The Moffat Project would decrease sediment transport capacity and the time required to return to equilibrium would be greater but this hypothetical condition was not quantified. *(DEIS, page 4-21);* ▪ Since impacts on sediment supply would occur with or without the Project, they were not **evaluated because of its "speculative nature."** *(DEIS, page 5-47)* b. DEIS Conclusion Errors The pine be**etle infestation is not "speculative"; Grand** and Summit counties are in the midst of widespread an infestation. Documentation, hydrologic models and risk assessment procedures are available that address the relationships between pine beetle infestations and watersheds. *(Buffington, et.al.)* The DEIS fails to describe potential pine beetle impacts on the existing (2006) and estimated **2016 "baseline" conditions. Further compromised existing conditions can exacerbate the** impacts from the Project and the cumulative impacts. The DEIS also fails to estimate the impacts of the Project and the cumulative impacts due to the pine beetle infestation. c. Environmental Consequences Scholarly research has identified and the DEIS has acknowledged potential adverse impacts from the pine beetle infestation and related hazardous wildfire conditions and watersheds including: elevated runoff conditions which can cause both flooding and drying of streambeds; elevated erosion and related increases in sedimentation and nutrient loads, and; reductions in stream temperature. These impacts have adverse consequences on water quality, aquatic life, wastewater treatment permitting. D. CLIMATE CHANGE AND GLOBAL WARMING 1. **The DEIS fails to evaluate cumulative impacts of climate change and global warming.** **The DEIS recognizes that "numerous studies have been conducted on the relationship between climate change and water resources in the west and that "most climate change** models project that temperatures will continue to **rise in the West". (***DEIS, page 5-34)* a. DEIS Conclusions **The DEIS simply states that "climate change and global warming may be considered** reasonably foreseeable; but currently there is no accepted scientific method of transforming the general concept of increasing temperature into incremental changes in stream flow or **reservoir levels" (***DEIS, page 5-35)*. The DEIS excludes evaluation of impacts due to climate change and global warming on existing conditions, on impacts attributable to the Moffat Project and on cumulative impacts. 69	to include information on the increased frequency, duration and time of year that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements that would be dried up. Additional information is included in FEIS Sections 4.6.1 and 5.1 on changes in daily diversions and streamflows for a sequence of dry years followed by a wet year. Information was added to FEIS Appendix H-6 regarding the timing and magnitude of maximum flow reductions. ***Comment #836-79*** *(ID 4720)**:*** *Environmental Consequences Understated and inaccurate forecasts of streamflow depletions make subsequent impact analysis on water quality, stream morphology, aquatic life, recreation and land use inaccurate and the DEIS conclusion regarding impacts wrong.* **Response #836-79:** Please see the response to Comment ID 4743. ***Comment #836-85*** *(ID 4719)**:*** *The DEIS fails to evaluate the magnitude and potential change in timing of peak flow reductions. The timing and magnitude of peak flows that occur naturally are important for flushing flows to cleanse and protect spawning gravels, prevent smothering of aquatic macroinvertebrates, for channel maintenance flows that help to maintain the connection between the channel and the floodplain and for transporting sediment. Reductions in peak flows as well as changes in the timing of peak flows (Poff, 1997) can affect aquatic life, stream health and recreation. [See AQUATIC BIODIVERSITY AND NATURAL FLOW REGIMES Figure in Source File.] a. DEIS Conclusion The DEIS concludes that the "overall pattern of the flow regime" in the Fraser River will "be the same, with the highest flows during spring runoff and lowest flows in the winter . . ."*

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	It is inconsistent that Denver Water uses information about global warming to argue for maintaining its 30,000 acre feet of Strategic Water Reserve which is excluded from the total system supply and therefore contributing to the need of the Moffat Project. *(DEIS, page 1-14)* **b. DEIS Conclusion Errors** There are established, scientifically-sound methods to evaluate the potential impacts from climate change. Two examples that follow illustrate this point. ▪ A recent report prepared by the Western Water Assessment for the Colorado Water **Conservation Board concludes that "enough information is available to support adaptation planning for risks associated with climate variability and change."** *(WWA, 2008)* ▪ The Colorado Water Supply Availability Study, in preparation under the direction of the Colorado Water Conservation Board *(CWCB)*, includes data to perform a quantitative analysis of climate change impacts, including much of the data that Denver Water needs. The Study also describes a method to evaluate the effects of climate change and commits to evaluate effects on both the demand side by the Consumptive Use Group and on the supply side in the Supply availability study. Denver Water and several other Front Range water suppliers are currently engaged in a climate adaptation analysis. To evaluate impacts on the rivers and ecosystems **comprehensively, both the CRWAS and Denver Water's efforts should be integrated into the DEIS and Denver Water's water supply modeling**. In **2009, the Council on Environmental Quality (CEQ) stated the "CEQ sees no basis" for** excluding greenhouse gas emissions from the consideration of environmental effects that must be analyzed in the NEPA process. *(CEQ, 2009)* In early 2010, at the request of both federal agencies and advocacy organizations, the Council on Environmental Quality (CEQ) released a draft guidance memorandum on ways Federal agencies can improve their consideration of the effects greenhouse gas emissions and climate change in their evaluation of proposals under NEPA. *(CEQ, 2010)* **c. Environmental Consequences** As stated in the CEQ document, climate change can increase the vulnerability of a resource or ecosystem, causing a proposed action to result in more damaging consequences than prior experience might indicate. Climate change can magnify the damaging strength of certain effects of a proposed action. In the case of the Moffat Project, stream temperature increases, sedimentation aggradation due to climate change and global warming may exacerbate the already fragile condition of aquatic resources and increase Project and cumulative impacts. 70	*(DEIS, page 4-316). b. DEIS Conclusion Errors The DEIS conclusion is misleading because the magnitude of peak flows projected in 2030 will be only slightly greater than winter base flows (See Figure 2 in Section III) [SEE ATTACHMENT, JOINT REBUTTAL REPORT.]. Moreover, the DEIS does not provide information necessary to evaluate the magnitude or changes in timing of peak flow reductions and their impact on the resources.* **Response #836-85:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and

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	IV. MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT The DEIS discloses impacts of the project for which no mitigation is proposed. Further, it does not identify certain impacts because it fails to take into account already degraded existing conditions in the Upper Colorado River system. Finally, it incorrectly concludes that there will no impacts because it does not apply appropriate methodology. For the Proposed Project to satisfy 404(b)(1) Guidelines, mitigation of all unavoidable impacts is required. The DEIS proposes limited temperature monitoring and mitigation and Colorado River cutthroat habitat improvements as the only mitigation for impacts on the West Slope. These measures are not sufficient to mitigate the impacts that are likely to be caused by the Moffat Project. In addition to those measures, below is a list of suggested Section 404 permit conditions that would help to address (but may not fully resolve) the DEIS shortfalls and the concerns raised in this report. **A. ADAPTIVE MANAGEMENT AND MONITORING PLAN** Prior to Project construction, Denver Water should develop an Adaptive Management and Monitoring Plan in conjunction with Grand County, Summit County, the Colorado River Conservation District, and other key stakeholders (including Trout Unlimited), and acceptable to CDOW, USACE and EPA. Recognizing the uncertainties associated with impacts of the proposed incremental depletions, the purpose of the Plan is to monitor, evaluate, prevent and address potential environmental impacts of the proposed project in the Fraser, Blue and Colorado River watershed. The Plan will cover the Fraser and Williams Fork Rivers and affected tributaries as well as the Colorado River from the outflow of Windy Gap Reservoir to its confluence with the Blue River, and the Blue River from the Dillon Reservoir to the confluence with the Colorado River. Operation of the Project will not result in unacceptable impacts to aquatic resources and stream health, as reflected by key aquatic life and stream health indicators to be identified in the Adaptive Management Plan. **1. Elements of Adaptive Management and Monitoring Plan** The Adaptive Management and Monitoring Plan to include at a minimum: ▪ Identification of key stream segments and groundwater to monitor including, but not limited to, the Fraser River, Ranch Creek, St. Louis Creek, Vasquez Creek, the Colorado River from downstream of its confluence with the Fraser River to its confluence with the Blue River, and the Blue River from Dillon Reservoir to the confluence with the Colorado River. ▪ Baseline of existing hydrologic conditions prior to Project depletions (based on analysis of the hydrologic record at all pertinent stream gages within affected stream reaches), to be developed within 5 years after issuance of the 404 permit or prior to Project diversions, whichever occurs first. ▪ Baseline of existing ecological conditions prior to Project depletions as reflected by analysis of any existing fishery, aquatic macroinvertebrate and channel geometry data and 71	Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of

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	groundwater data, to be developed within 5 years after issuance of the 404 permit or prior to Project diversions, whichever occurs first. ▪ Development of a baseline water quality, water temperature and sediment loading and transport conditions by stream reach. ▪ Development of a baseline relationship between changes in ecologic conditions and changes in hydrology. ▪ Use baseline ecologic/hydrology change relationship to attempt to predict changes in ecologic conditions. ▪ Establish key indicators of aquatic life and stream health (e.g., fish biomass) and threshold levels that reflect declines in aquatic life and stream health. ▪ Incorporate base flow targets, as developed through the Grand County Streamflow Management Plan. ▪ Using key indicators, biologic monitoring to evaluate changes in fish, aquatic invertebrate, and aquatic plant populations. ▪ **Coordinated, comprehensive monitoring of Denver Water's** implementation of permit conditions, and mitigation obligations to make sure that measures are effective and to avoid redundant, inconsistent or ineffective environmental commitments. ▪ Permanent stream transects to monitor and evaluate any future changes in ecological conditions associated with changes in channel maintenance and flushing flows associated with Project depletions. ▪ Procedural mechanism through which Denver and key stakeholders identify operational changes or restoration Projects to be implemented to avoid unacceptable impacts to the aquatic environment. *Rationale* An Adaptive Management and Monitoring Plan for the Fraser, Blue and Upper Colorado River is appropriate because the impacts of the proposed action cannot be ascertained with scientific certainty. Moreover, there is disagreement among experts about the impacts that will occur. Adaptive Management and Monitoring will provide a means of detecting changes in the aquatic environment, judging whether they are likely caused by operation of the Project, and addressing changes in a systematic manner. B. MITIGATION AND CONDITIONS FOR PROTECTION OF AQUATIC ENVIRONMENT 1. **Dry year diversions.** 72	Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. Figure 2 in the Joint Rebuttal Report presents average daily hydrographs for varying periods. While average daily flows are less for the post C-BT and Windy Gap periods presented, the change in average daily flows may be partially due to additional diversions and partially due to differences in hydrologic conditions inherent in the periods presented. For example, the pre-C-BT average daily flows presented in Figure 2 are based on the 9-year period from 1937 through 1946 whereas the pre-Windy Gap average daily flows are based on the 38-year period from 1947 through 1984. The periods selected for Figure 2 in the Joint Rebutall Report are considerably different in length and the shorter periods may not be statistically consistent or representative of long-term average conditions. Furthermore, Figure 2 presents information on the change in average daily flows and should not be used to evaluate changes in peak flow rates. The maximum average daily flow rate may be

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	The Moffat Expansion Project will not divert water from the Fraser, Blue and Upper Colorado Rivers in dry years. *Rationale:* The DEIS asserts that the project will not divert additional water during dry years, (DEIS, 4-5) and the environmental impact assessment is based upon that assumption. Consequently, the impacts of additional diversions in dry years has not been evaluated. This condition is necessary to ensure that the project actually operates as described and evaluated in the DEIS. **2. Diversions limited to May, June and July.** Diversions under the Moffat Expansion Project for storage in the enlarged Gross Reservoir will be limited to the months of May, June and July. To ensure this condition is satisfied, there shall be no deliveries of water through the Moffat Tunnel into Gross Reservoir when end of month storage content in Gross Reservoir in all months, except for May, June, and July, is at or above 41,811 af (the existing capacity of Gross Reservoir). *Rationale:* The DEIS assumes that the Moffat Expansion Project will divert water in the runoff months of May, June, and July into an expanded Gross Reservoir (DEIS, 4-5) and the environmental impact assessment is based on this premise. This condition is necessary to ensure that the project actually operates as described and evaluated in the DEIS and does not instead, extend diversions into other months because of an additional 72,000 af of storage space. **3. Stream Temperature Conditions.** Denver will not divert water from its Moffat System if stream temperatures are (1) at or above acute or chronic State Standards, or (2) will cause or contribute to a violation of State Standards as measured by real life data provided by gages to be installed by Project proponent on the Colorado, St. Louis Creek, Vasquez Creek, Fraser River, Blue River, and Ranch Creek. Curtailment of diversions shall continue until such time as the stream temperature at the gages does not exceed temperature standards. *Rationale:* This condition is necessary to satisfy Section 230.10 (b)(1) of the 404(b)(1) Guidelines which does not allow a project to be permitted if it causes or contributes to state water quality standards. The DEIS states that there may be additional temperature impacts in these streams. The Colorado River from below Windy Gap to the confluence with the Blue River will be on the 2010 303d list of impaired waters for temperature exceedences. Monitoring is necessary to ensure that additional depletions do not cause violations of State standards which have been established to protect fish. **4. Wastewater Treatment Plant Discharge Permit Flows.** Denver will not divert additional water from its Moffat System if Fraser River stream flows drop below the acute and chronic flows in the Winter Park, Granby or Fraser wastewater treatment plant discharge permits and will not divert additional water from Dillon Reservoir or the Blue River if Dillon Reservoir levels or releases drop below the acute and chronic 73	significantly different than the average peak flow. For example, the maximum average daily flow for the pre-CBT period from 1937 through 1946 was 2,604 cfs on June 1, however, the average daily peak flow experienced during that period was 3,409 cfs. The average daily peak flow is considerably higher because it occurs on a different day each year of that period. The DEIS does contain a discussion of peak flows, as cited above. We disagree that the discussion is misleading. The FEIS contains an expanded discussion of the magnitude and timing of peak flows and the effects on aquatic resources in Sections 4.6.11 and 5.11. ***Comment #836-84*** *(ID 4718)**:*** *Peak Flow Conditions The DEIS fails to disclose and evaluate anticipated peak flow reductions between existing conditions (2006) and Full Use (2016). Peak flow reductions that occur before 2016 could have a significant impact on stream resources. These impacts would be aggravated by the additional peak reductions resulting from operation of the project after 2016. The DEIS describes the magnitude of peak flow reduction between 2016 and 2030 (Project operation), but it does not provide any context regarding the actual changes to the projected peak flow rates between existing conditions and after the Project is completed in 2030. Table 7 below presents a comparison of the maximum daily flow reduction indicated in the DEIS (DEIS, Table H-6) to the actual maximum peak daily recorded streamflow from the available gage data at several locations in the upper basin. Table 7 shows that the Moffat Project would reduce peak streamflow at five locations in the watershed by as much as 78% compared to actual pre-project streamflow. This significant change in peak flows is neither disclosed nor evaluated. [SEE SOURCE FILE FOR TABLE 7, MAXIMUM DAILY ACTUAL HISTORICAL STREAMFLOW AND PERCENT REDUCTION DUE*

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	flows in the Snake River, Blue River, Frisco and JSA wastewater treatment plant discharge permits. *Rationale:* The Moffat DEIS concludes that no impacts to wastewater treatment plants in the Fraser, Snake and Blue Rivers will occur because river flows will not drop below chronic and acute flows in discharge permits. This mitigation element assures that this will be the case. **5. Wastewater Treatment Plant Permit Costs.** Denver agrees to pay for new or increased permitting costs for wastewater treatment plants that are tied to percent effluent in the river, such as those associated with increased Whole Effluent Toxicity monitoring or new metals removal unit processes. *Rationale:* The Moffat DEIS concludes that impacts to the wastewater treatment plants will be negligible because the percent of effluent comprising river flows is not significant. This mitigation element would hold the project to that conclusion so that the wastewater treatment plants do not have to assume the costs of changes to their permits not caused by the wastewater treatment plant. **6. Protection of drinking water supplies.** Prior to construction of any project feature, the Denver shall submit to COE, Grand County, Summit County, NWCCOG and CDPHE for approval a water quality monitoring plan for those water quality parameters that affect drinking water supplies (*see* Colorado Basic Standards and Methodologies for Surface Waters, 5 CCR 1002-31). Once the monitoring plan is approved, Denver will comply with said plan. If monitoring indicates that the project is causing elevations of these parameters, then diversions from the Moffat System shall cease and a corrective action plan shall be submitted to and approved by the COE, Grand County, Summit County, NWCCOG and CDPHE. *Rationale:* Water quality degradation could lead to water treatment problems for communities downstream of Moffat Collection System. Small communities cannot afford increased water treatment costs. The Moffat Project will divert mostly clean water from the Fraser, Williams Fork and Blue Rivers, which would impact downstream potable drinking water supplies for Grand County Water and Sanitation District, Winter Park Water and Sanitation District, Summit County including the Towns of Frisco, Dillon, and Silverthorne, Towns of Winter Park, Fraser, Tabernash, Granby, Hot Sulphur Springs, Parshall and Kremmling. **7. Fugitive Dust Control.** Denver will develop a fugitive dust control plan to address dust from the increasingly exposed shoreline area on Williams Fork and Dillon Reservoirs. *Rationale:* The Moffat DEIS recognizes that surface water elevation will be reduced. This increases the potential for increased air and water pollution from fugitive dust where more shore line will be exposed. 74	*TO MOFFAT PROJECT (PROPOSED ALTERNATIVE 1A AND NO ACTION.]* **Response #836-84:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River Basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line.

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	8. **Flushing Flows.** As part of the Adaptive Management process, Denver will provide periodic flushing flows based on updated sediment transport models to protect species with life stages that are sensitive to sedimentation. *Rationale:* The conclusion that sediment transport capacity is greater than sediment load is not supported by empirical field studies which indicate that sediments are currently accumulating under current hydrologic conditions. *DEIS Table 3.1-19 on p. 3-72.* Table 3.1-19 shows that four of the seven DEIS sediment transport study sites are currently indicating **"potential signs of aggradation". Aggradation occurs in areas where the supply of sediment is** greater than the amount of material that the system is able to transport. Contrary to the sediment transport study findings, this observation would suggest that the current flow regime is insufficient to transport the existing sediment load. Additional depletions under the Full Use (2016) and Full Use w/Project (2030) scenarios will only exacerbate this problem. An updated sediment transport model is necessary to determine conditions in affected streams. 9. **Aquatic Environment 2016 Baseline.** Denver will establish an aquatic environment baseline at 2016 to evaluate conditions that will exist at the time the Project is developed. *Rationale:* The DEIS assumes that the condition of the aquatic environment in 2016 will be the same as it is today when it evaluates the impacts of the proposed action, even though the **2016 hydrology is based on a significant increase in stream depletions over today's conditions, i.e. "full use of Denver's existing system."** 10. **Supplemental Analysis.** Prior to construction, Denver Water shall demonstrate to the satisfaction of the COE that the major assumptions used by Denver Water in PACSM to model diversions and stream flows for Full Use of Existing System and the Proposed Action are still reasonable and valid. If conditions and assumptions have significantly changed, then supplemental analyses will be required. *Rationale*: **The DEIS uses Denver Water's PACSM which contains major assumptions** related to future diversions, streams flows, and hydrologic conditions. If those assumptions change significantly, it will call into question the validity of environmental impacts predicted in the DEIS. 11. **Reuse.** In order to minimize the amount of water removed from the Fraser, Williams Fork and Blue Rivers and their tributaries, Denver Water shall, to the maximum extent practicable, reuse or make successive use of its native and foreign reusable water supplies. The maximum extent practicable shall be defined as the reuse and successive use of 80% of the reusable return flows. The 80% target includes water that is reused or successively used to extinction. To ensure compliance with this condition, Denver Water shall prepare and submit to the COE, 75	Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3.

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	Grand and Summit Counties, and EPA an annual report summarizing its total water supplies, total return flows and the amount of reusable water supplies and provide accounting showing the total amount of water that was reused or successively used by Denver Water and its treated and raw water customers. Failure to make a reuse or successive use of 80% of the water diverted over a cumulative ten year rolling average shall result in an equivalent reduction in diversions from the Fraser, Williams Fork, and Blue River Basins in the following cumulative ten year period. *Rationale*: Maximizing the current and future water supplies Denver Water and its customers will both minimize the amount of water removed from Western Colorado and minimize the adverse effects to the aquatic ecosystem. (80% is a feasible, achievable reuse/successive use figure bas**ed on other front range cities. See the City of Lafayette's reuse plans. (Windy Gap** DEIS p. 1-27) This permit condition is necessary to satisfy the requirements of: Section **230.11 which requires permitees to take steps to "minimize potential adverse effects" to the** aquatic ecosystem; Section 320.4 (a)(1) which requires an evaluation of the impact on the public interest and a balancing of the benefits of the projects (water supply for the participants) against the detriments (impacts to the Colorado River system); Section 320.4(m) requiring implementation of water conserving measures; and Colorado law concerning the reuse of transmountain water in order to lessen the amount of water diverted from the western **slope. ("In order to minimize the amount of water** removed from Western Colorado eastern slope importers should, **to the maximum extent feasible**, reuse and make successive use of **the foreign water."** *Denver v. Fulton Irrigating Ditch Company*, 506 P.2d 145, 148 (Colo. 1972) (emphasis added) **12. Conservation and Drought Response Plans.** Prior to construction of any project feature, Denver Water shall require as a condition of service delivery that all of its treated and raw water customers shall prepare and implement: 1) a supply-side water conservation plan that shall include among other things a goal of less than 8% system loss that will include leakage in water pipes, pipe breaks, pipe flushing and unaccounted-for water in the raw and treated water distribution systems; 2) a demand side water conservation plan, that shall include among other things a goal of a system-wide average per capita use of 120 gpcd or less; and 3) a drought response plan that has goals of reducing demands based on droughts in ranges of 10%, 25%, 50%, and up to 66%, which will include a prohibition on outdoor watering except to save tree canopies. The plans shall be submitted to the COE, Denver Water, NWCCOG and Grand and Summit Counties which shall review these plans and makes recommendations for implementation. If any customer fails to prepare or implement these plans, Denver Water shall reduce the amount of water diverted from the Fraser, Williams Fork and Blue Rivers by an amount equivalent to the amount that would be provided to such Denver Water customer. *Rationale*: The DEIS notes that water conservation includes both supply-side and demand-side management. If the Moffat Project is to be permitted as the least damaging environmental alternative, (Section 230.210(a)) then conservation measures need to be included in the permit to correspond with the projected needs of the Denver Water customers and the statements in the DEIS concerning conservation. The public interest review by the COE requires a balancing of water supply and conservation and efficient use of water 76	The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. The following example demonstrates why it is incorrect to compare modeled maximum daily flow reductions in Table H-6 with historical peak daily streamflows as shown in Table 7 of the Joint Rebuttal Report. The maximum daily flow reduction under the Proposed Action at the Vasquez Creek gage would be 324.5 cfs. Based on PACSM results, this flow reduction occurred on June 19, 1971. On that day, the modeled flow at the Vasquez Creek gage was estimated to be 363.4 cfs under Full Use of the Existing System, whereas under the Proposed Action, the flow would be reduced to 38.9 cfs on June 19. Under Full Use of the Existing System, flows at the Vasquez Creek gage began to increase significantly on June 15 after Gross Reservoir was full, with the peak flow rate of 363.4 cfs occurring on June 19th. However, with additional storage on-line under the Proposed Action, the diversion season would be extended because it would take longer to fill Gross Reservoir. As a result, flows under the Proposed Action would not increase at the Vasquez gage under the Proposed Action until June 23rd, approximately eight days later. The peak flow rate under the Proposed Action would be 348.1 cfs on June 24th, therefore, the peak flow rate in 1971 would be reduced by only 4% (363.4 cfs versus 348.1 cfs) as opposed to 78%, as shown in Table 7

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	resources in all actions which involve the significant use of water, such as the Moffat Project. Section 320.4(m) **13. Didymo study and mitigation.** Prior to any diversions from the Moffat Project, the permittee shall contribute to fund an independent study of the current algae build-up in the Colorado River below Windy Gap **diversion dam known as "didymo." The study shall determine the causes of the problem and** identify potential solutions, and shall be reviewed and approved by a panel of representatives from Denver Water, Northern Water and the Municipal Subdistrict, Bureau of Reclamation, COE, CDOW, EPA and Grand County. If the study shows that the reduction in streamflow is **a principal cause of the "didymo" problem, diversions under the pending firming pr**ojects shall cease until a plan to alleviate impacts from didymo can be developed and successfully implemented. *Rationale*: This permit condition is necessary to prevent degradation of the aquatic environment. C. MITIGATION AND CONDITIONS FOR PROTECTION OF RECREATION RESOURCES **1. Kayaking and rafting in the Colorado and Blue Rivers** ▪ Participate in a cooperative-broad stakeholder group process as part of the Wild & Scenic Rivers management plan alternative to protect the fishing and recreational outstandingly remarkable values while facilitating water project operations. ▪ Establish a baseline measurement of acceptable and optimal kayak and rafting river flow conditions in an average year. ▪ Establish baseline conditions of stream flow suitable for kayaking and rafting in average water year conditions on a monthly basis. ▪ Curtail diversion when acceptable and optimal stream flow conditions drop below baseline. ▪ Establish an Adverse Impact Fund to mitigate specific impacts attributable to Denver Water. Require Denver Water to fund and replenish the fund as needed. ▪ If conditions are violated, then use Fund revenues, based on economic benefits lost associated with boating days lost and direct funds to an economic development organization that focuses on tourism activity in western Grand County and Summit County. D. AGRICULTURAL RESOURCES. **1. Agriculture (Irrigation Ditch Operations)** ▪ Develop a baseline condition and describe the relationships between water flow, water temperature and irrigation ditch structures problems and failures. ▪ Research remedies to upgrade irrigation systems so they can work in lower water flow conditions. 77	of the Joint Rebuttal Report. Furthermore, the historical peak flow of 417 cfs referenced in Table 7 for the Vasquez Creek gage occurred on June 25, 1983. PACSM results show the modeled flow rate on that day under both Full Use of the Existing System and the Proposed Action would be 415 cfs. Therefore, there would be no change in the peak flow in 1983 because the peak would occur after Gross Reservoir fills under both Full Use of the Existing System and the Proposed Action. Information was added to FEIS Appendix H-6 regarding the timing and magnitude of maximum flow reductions. ***Comment #836-83*** *(ID 4717)**:*** *Peak Flow Timing The DEIS fails to evaluate the timing of changes in peak flows. The timing of peak flows provides critical life cycle cues to macroinvertebrates and fish. (Poff, et.al, 1997) A change in timing can have a significant impact on those resources. Hydrographs presented in the DEIS (Appendix H-4) appear to show that the Moffat Project will delay peak flows: [SEE SOURCE FILE FOR TABLE 8, DELAYS IN PEAK FLOW ATTRIBUTABLE TO THE MOFFAT PROJECT – PREFERRED ALTERNATIVE.] However, the DEIS does not discuss or evaluate changes in timing of peak flows or consequences to the resources. c. Environmental Consequences There is an inextricable relationship between the natural flow regime (Poff, 1997) and the health of aquatic resources. Alterations of the natural flow regime attributable to the Project are likely to cause impacts to those resources. The failure to address peak flow reductions or shifting the timing of peak flows makes it impossible to properly analyze the impacts of the Moffat Project on water quality, stream morphology, aquatic life, recreation, and land use properly.* **Response #836-83:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily

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	▪ Use the Adverse Impact Fund for capital improvements to remedy irrigation diversion structure problems triggered by additional Denver Water diversions. If there are flow conditions that impact agricultural operations that cannot be remedied with a capital investment in the irrigation equipment, then consider payment for related losses in crop production revenue. E. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS. Prior to construction of any project facility, Denver Water shall demonstrate to the satisfaction of the Corps of Engineers that it has received the necessary permits, approvals and conditions from all local, state and federal agencies including but not limited to: 1) State of Colorado 401 Certification; 2) compliance with the NWCCOG Water Quality Management Plan; and 3) a fish and wildlife mitigation plan as required by C.R.S. § 37-60-122.2.. *Rationale*: The Corps of Engineers cannot issue a 404 permit for a project that does not comply with law. 78	hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all of Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would drop from 1,243 cfs to 1,152 cfs under the Proposed Action, a reduction of 91 cfs or 7% with little change in the timing of the peak flow. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years; however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to FEIS Sections 4.1 and 5.1. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, IHA (a computer model used to calculate the characteristics of altered hydrologic regimes),

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	IV. SECTION 404 PERMIT APPLICATION: COMPLIANCE WITH GUIDELINES The Moffat Project fails to satisfy the following 404(b)(1) Guidelines. A. GUIDELINE – SECTION 230.10(a) *Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.* 1. DEIS Conclusion The DEIS concludes that the Moffat Project is the least environmentally damaging practicable alternative. 2. DEIS Conclusion Errors The Corps has improperly limited the range of alternatives that were evaluated, and the method used to evaluate the relative adverse impacts of the alternatives is flawed. The screening process used by the COE to evaluate the original, broad range of alternatives resulted in the elimination of the majority of the alternatives, including those most likely to be the least environmentally damaging practical alternatives. See March 15, 2007 letter from Grand County on *Alternatives Screening Report*. The COE cannot reasonably determine the least environmentally damaging practical alternative was not eliminated from further consideration without the benefit of a comparative environmental analysis of the alternatives discarded solely based on relative cost. Under NEPA, cost, by itself, does not necessarily make an alternative unreasonable, infeasible, remote, speculative, impractical, or ineffective. *See Province of Manitoba v. Norton,* 398 F. Supp. 2d 41, 64-**66 (D.D.C. 2005). "Without some reasonable attempt to measure** [environmental] consequences instead of bypassing the issue out of indifference, fatigue, or through administrative legerdemain, the Court cannot conclude that [the Bureau] took a hard **look at the problem."** *Id.* at 65. a. Non-Water Dependent Alternatives The DEIS Inappropriately Screened Out All Non-Water Dependant Alternatives._The **Guidelines state that there is a presumption that "alternatives that do not involve special aquatic sites are available, unless clearly demonstrated otherwise" and that "all practica**ble alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly **demonstrated otherwise."** 79	was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. FEIS Sections 4.6.11 and 5.11 were revised to evaluate any changes in the timing of peak flows. ***Comment #836-78*** *(ID 4716)**:*** *DEIS modeling is inadequate to evaluate impacts of increased dry year conditions. a. DEIS Conclusion The DEIS reaches various conclusions with respect to impacts to flow-dependant resources without taking into account dry year conditions. Examples are included in Section II.B. and II.C.)[SEE ATTACHMENT, JOINT REBUTTAL REPORT.] b. DEIS Conclusion Errors DEIS predictions are based on single-year predictions that fail to identify or evaluate actual changes in surface water hydrology patterns increasing the frequency and duration of dry year conditions that could further degrade the aquatic environment.* **Response #836-78:** Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources. FEIS Sections 4.6.1 and 5.1 were also revised to include more information on changes in daily diversions and streamflows for a sequence of dry years followed by a wet year. A discussion of the effects of changes in dry year patterns on aquatic resources is included in FEIS Sections 4.6.11 and 5.11. ***Comment #836-82*** *(ID 4715)**:*** *Frequency of Dry Year Conditions The Moffat Project will increase the frequency and duration of dry year conditions. To understand the magnitude of the potential environmental impacts, the DEIS should use the actual daily Platte and Colorado*

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	The COE has found that the proposed action is NOT water dependant because the basic **purpose is water supply, and water supply projects "do not of necessity need to involve placement of dredged or fill material into waters of the U.S. . . ."** *(DEIS Appendix K-26.)* Nevertheless, the DEIS screened out all non-water dependant projects AND selected a preferred alternative WITH "unavoidable" impacts to the aquatic environment. There **will be "unavoidable adverse impacts from streamflow changes, increased diversion of** water from the West Slope, and water temperature changes in the Fraser and Colorado **River basins."** *(DEIS Page 4-199)*. **Even though the DEIS states that "the five alternatives to be carried forward** … **represent a reasonable cross**-section of **practicable alternatives."** *(DEIS, page 2-9)*, all alternatives that survived the screening **analysis are water dependant with approximately the same "unavoidable" impacts to** the aquatic environment in the Fraser and Upper Colorado River. Examples of non-water dependant alternatives that were not considered are: ▪ Conservation and Natural Replacement Savings Alternative that is consistent with recent historic Denver Water conservation achievements and stated objectives. ▪ A Water Reuse Alternative that includes excess capacity from the WISE Cooperation Agreement. ▪ An alternative that includes potential benefits from agricultural-urban cooperative water sharing agreements (AUAs) which can supplement surface water supplies at acceptable volumes and exclude the need to purchase water rights. All 20 non-water dependent alternatives that were considered were also eliminated by various screening criteria. These criteria and the reason for elimination are presented in the table that follows. TABLE XX: NON-WATER ALTERNATIVES IDENTIFIED IN DEIS ELIMINATED BY SCREENING CRITERIA ALTERNATIVE — ELIMINATED BY THIS SCREENING CRITERION **Institutional Water Management** 301 Raw Water Load Shift — Cost 302 Integrated Operation with NCWCD — L 11- Require Congressional Action 303 Northglenn Water Exchange — PN1 – Provide New Firm Yield 304 Renegotiate 1940 Consolidated Ditch Agreement — PN3 – Produce Solution by 2016 305 Treated Water Load Shift — No reason provided 306 Buy Back Contract Commitments — PN3 Produce Solution by 2016 307 Land Purchase & Conversion to Open Space — PN3 Produce Solution by 2016 309 Around the Horn — L11 – Congressional Action Required 310 Integrated Aurora and Denver Operations — PN2 – Must supply water to Moffat 311 Vail Ditch — PN1 – Provide New Firm Yield 315 Chatfield Storage Reallocation — L11 Congressional Action Required **Reuse and Treatment Alternative Concepts** 401 Direct Potable Reuse — ET1 – No impoundments on new waterways 80	*Simulation Model (PACSM) output at various locations. An example of this type of analysis was completed using the same PACSM output completed for the Upper Colorado River Basin Study (UPCO, 2003). As a cooperating agency, Grand County made numerous requests for PACSM information; the information was not provided (PASCM Data Requests, 2009-2010) Using the UPCO output, an estimate of dry year frequency and duration under Alternative 1a (Moffat Project) was calculated and compared to the actual streamflow records for the Fraser River at the Winter Park stream gage. The actual streamflow records were ranked based on annual volume, and the bottom 25th percentile was assumed to be a dry year. This resulted in a 25th percentile flow volume of 7,124 acre feet per year. As shown on Table 9, out of the 45-year PACSM study period 12 years were considered to be 'dry years.' Using the UPCO hydrologic output for the same location shows that, following completion of the Moffat Project, the number of dry years will increase from 12 to 27 years out of 45 (a 225% increase). [SEE SOURCE FILE FOR TABLE 9, FRASER RIVER AT WINTER PARK COMPARISON OF TOTAL ANNUAL VOLUME AND FREQUENCY OF DRY YEARS.] This analysis also shows that the duration and recurrence of back-to-back dry years will increase dramatically under the proposed action. Actual gage data for the PACSM hydrology period (1947-1991) shows that there have historically been a total of 4 sets of at least 2 back-to-back dry years, with the longest period being four years in a row. The UPCO results show that, following completion of the Moffat Project, the Fraser River at the Winter Park gage will have 7 sets of at least 2 back-to-back dry years, with the longest being eight years in a row. (Refer back to Table 9.) Although there are differences between the PACSM output prepared for UPCO and for the DEIS, the differences are not likely to alter the overall magnitude of the project diversions and streamflow reductions on the Fraser River. There will*

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	TABLE XX: NON-WATER ALTERNATIVES IDENTIFIED IN DEIS ELIMINATED BY SCREENING CRITERIA ALTERNATIVE — ELIMINATED BY THIS SCREENING CRITERION 402 Indirect Potable Reuse — Cost 403 Expand Non-Potable Reuse — LP2 – Deliver 3,600 AF/year Demand Reduction Concepts: 501 Convert Raw Water Contracts to Treated Water Contracts — PN3 – Produce Solution by 2016 Agricultural and Other Water Purchase Contracts 601 Agricultural Water Purchase — Cost 602 Gross Pasture Tarn Water Lease Purchase — LP2 – Deliver of 3,600 AF/Year 603 Clinton Gulch Reservoir Water Lease/Purchase — LP1 Store 15,000 AF 604 Barr Lake Plan — LG2 – Deliver 3,600 AF/Year 605 Thornton Pivot — PN1 – Provide New Firm Yield Source: DEIS Appendix B, Alternatives Screening Criteria Information b. Screen 1A Criteria Five Screen 1A criteria are not valid because they inappropriately constrain the range of practicable alternatives. As stated by the Council on Environmental Quality and repeated in the DEIS *(DEIS, page 2-1)* In determining the range of reasonable alternatives to be **considered, "The emphasis is on what is reasonable rather than on whether the proponent or** applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint using common sense, rather than simply desirable from the standpoint of the **applicant."** *(CEQ, 40)* These five (of 16) Screen 1A criteria eliminated 177 alternatives from 303 alternatives originally constructed. ***Screening Criterion PN2*** eliminates all alternatives that do not supply water to the Moffat Collection System. This screening criterion is not necessary to achieve the basic purpose and need of delivering 18,000 acre feet of firm water supply and narrows all surviving criterion to those that impact Grand County. It eliminated 19 alternatives, including one of the twenty non-water alternatives, which are listed above. ***Screening Criterion PN3*** eliminates all alternatives that do not produce a solution by 2016. Due to documented, historic Denver Water conservation practices already achieved, natural replacement assumed to have been achieved between 2001 and 2005, and future conservation policy commitments and expectations through the Tap-Smart Plan, we question whether an alternative needs to be in place by 2016. This criterion eliminated 15 alternatives, including four non-water alternatives, which are listed above. ***Screening Criterion L11*** eliminates all alternatives that require Congressional Action. The reason is an alleged time consideration. As discussed above, we question the need to complete the project by 2016, which is ten years from today. This criterion eliminated 12 alternatives including three non-water alternatives, which are listed above. 81	*be significant increase in the frequency and duration of dry year conditions on the Fraser River.* **Response #836-82:** Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources. ***Comment #836-81*** *(ID 4714)**:*** *Dry Year Impact Evaluation The DEIS recognizes that Moffat Project diversions would occur in average and wet years and that "typically additional diversions would be greatest in wet years following dry year sequences" (DEIS, page 4-5). Yet, the DEIS does not look at the extent to which Moffat Project's diversions following dry years will increase the incidence of dry-year conditions in the streams. Nor does it evaluate the impacts of these increased dry conditions on aquatic life, recreation, water supply and other flow-related resources. The DEIS only estimates hydrologic changes during dry, average and wet years in isolation. It does not consider the potential for the Moffat Project to permanently alter existing hydrology over a period of years. Because of this, it is impossible to understand from the DEIS the following critical information to evaluate the impacts associated with the project: • The actual estimated timing and magnitude of the diversions and changes in streamflow from day to day, month to month or year to year • The extent of the greatest daily, monthly and annual diversions and reductions in streamflow in varying hydrologic conditions • The extent to which the proposed project will increase the duration that the source area streamflow will be limited to only the minimum USFS bypass flows. • The extent to which the proposed project will result in converting historical average years into dry years in the future, increasing both the frequency and duration of dry years. • The extent to which the proposed project will result in converting historical wet years into average years. c.*

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	Screening Criterion LP1 eliminates all alternatives that do not provide 72,000 acre feet of new storage and a minimum storage of 15,000 acre feet in any one impoundment. This eliminates consideration of a combination of water supply solutions that would be less environmentally damaging. If conservation had been properly built into the alternatives, then this capacity threshold would have been lower. Also, smaller storage vessels could be used to meet demand without becoming unmanageable. This is a powerful, high-level alternative that was designed for the management convenience of Denver Water. LP1 alone eliminated 94 of the 303 alternatives including one non-water alternative. ***Screening Criterion LP2*** eliminates all alternatives that do not provide 20% of the needed additional firm yield, or 3,600 acre feet. It is unclear why the source of supply must be made up of options that supply greater than 3,600 acre feet. This second, internal Denver Water management criterion eliminates the remainder of alternatives what would consist of smaller **projects that have less environmental impact. Denver Water's reason to, "prevent the incorporation of extraordinary levels of complexity"** *(DEIS, Page 2-6)* is unsubstantiated and inadequate when balanced against the significant environmental impacts of all Project Alternatives. LP2 eliminated 37 alternatives including two of the twenty non-water alternatives, which are listed above. **c. Stated Needs** The Project Alternatives do not achieve 3 of the 4 stated needs. The following project needs are not met by the Project Alternatives that survived application of the screening criteria: ***Reliability.*** Denver Water states a need for three treatment plans and the Moffat Plant is at risk of running out of water. In reality, potential treated water shortages are due to conveyance capacity constraints between the North and South systems, not lack of treated water supply. None of the Project Alternatives actually resolves the reliability need because none includes conveyance capacity improvements. ***Vulnerability.*** **The Proposed Action decreases "vulnerability" by decreasing reliance on** the South System from 81% to 77%, a 5% reduction. *(DEIS, Table 1-3)*. This miniscule decrease in reliance on the South System does not equate to a measurable decrease in vulnerability, especially when measured against the cost of the Proposed Action both in terms of money and environmental degradation. Improvements to system-wide security, maintenance and fire protection may reduce vulnerability better and more cost-effectively than any proposed Project Alternatives. ***Flexibility.*** It is unclear how 18,000 acre feet of additional supply provides any substantive benefits to system flexibility. There is no description of how planned and non-planned outages lead to supply interruptions to customers. Since none of the project alternatives that survived the screening tests achieve these three stated needs, those needs should not be included as justification for the Proposed Action, and projects that have less environmental damage could be given more serious consideration. **d. Purpose and need statement** 82	*Environmental Consequences. During dry years, stresses on water quality, aquatic life, stream morphology, wastewater providers, agricultural irrigators, and recreation users are particularly acute. The DEIS does not evaluate those stresses and in turn, proposes no mitigation that would avoid the risk to the resource.* **Response #836-81:** Information was added to FEIS Sections 4.6.1 and 5.1 on the increased frequency and duration of dry year conditions and the associated effects on resources. FEIS Sections 4.6.1 and 5.1 were also revised to include more information on changes in daily diversions and streamflows for a sequence of dry years followed by a wet year and the increased frequency and duration that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up. Information was also added to FEIS Appendix H-6 regarding the timing and magnitude of maximum flow reductions. Environmental effects during dry years were evaluated in DEIS Chapter 4. The proposed Moffat Project would not cause additional flow reductions in late summer months or in dry years because Denver Water would have already diverted the maximum amount physically and legally available under their existing water rights without additional storage on-line during those times. Table H-3.1 in DEIS Appendix H shows additional diversions through the Moffat Tunnel under the proposed Moffat Project would occur primarily during May, June and July. During late summer months in August and September and in dry years, there would be little to no additional water diverted. Therefore, current stresses on resources caused by low flow conditions would not be exacerbated by the proposed Moffat Project.

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	An overly-narrow purpose and needs statement in the DEIS has restricted the range of alternatives evaluated in the DEIS to those that could provide 18,000 AF/year of new firm yield to the Moffat Treatment Plant. See Nat'l Wildlife Fed'n v. Whistler, 27 F.3d 1341, 1346 (8th Cir. 1994) (noting the Corps should not permit developers to "artificially constrain the Corps' alternatives analysis by defining the projects' purpose in an overly narrow manner"). B. GUIDELINE – SECTION 230.10(b)(1) *No discharge of dredged or fill material shall be permitted if it:* *(1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard;* 1. DEIS Conclusion **The DEIS concludes that "none of the project alte**rnatives violate [sic] applicable state water quality standards. . ."_____. 2. DEIS Conclusion Errors The DEIS concludes that there will be exceedences of temperature standards and fails to accurately predict impacts of the project on existing exceedences of temperature and other water quality standards. Moffat Project has the potential to cause or contribute to these water quality standards violations: ***Ranch Creek – Temperature.*** Increases in exceedences of the daily maximum (DM) (acute) standard. There also is a potential for increased chronic standards (MWAT) violations. ***Mainstem of the Fraser River – Temperature***. Increases in exceedences of DM and MWAT state standards. There is a potential for increased violations, particularly MWAT. ***Fraser River – Copper***. Limited data indicates existing ambient water quality is not in attainment of standards for protection of aquatic life. ***Colorado River and other tributaries to the Fraser River – Temperature***. Increased exceedences of the MWAT and DM downstream of Windy Gap Reservoir to Kremmling *(DEIS, page 4-76)*. ***Vasquez Creek – Temperature.*** . Increased temperature impacts have not been analyzed. **The DEIS concludes that "[i]t is not known if the stream standards for temperature would** be exceeded du**e to the increased diversions." (DEIS at 4**-40). No effort is made to either quantify the frequency of exceedences or determine whether they will result in DM (fatal) or MWAT (chronic) violations. 83	***Comment #836-80*** *(ID 4713)**:* *"Small" flow reductions in the Fraser River and tributaries can have significant adverse effects on the aquatic environment. a. DEIS Conclusion Stream flow reductions in the Fraser River and small tributaries "will be reduced by less than 1 cfs more than 80% of the time." (DEIS, page 4-39). b. DEIS Conclusion Errors This conclusion is misleading because it implies that such flow reductions are insignificant. The conclusion is meaningless for two reasons: first, it does not reveal the potentially dramatic changes in flow that will occur the other 20% of the time; second, it ignores the fact that a reduction of flow of less than 1 cfs in a small tributary can have significant impacts – including the complete dry up of the stream. (i) Examples of significant flow reductions that occur the "other" 20% of the time • The DEIS projects a decrease in average monthly flow for June in the Fraser River below Winter Park of 23 cubic feet per second and concludes that these impacts are insignificant. (DEIS, Pages 4-37-4-39, and Appendix H-7.1). Yet, a decrease of 23 cubic feet per second on the Fraser River represents a reduction in flow of 43% for June from the Full Use (2016) baseline (DEIS, Appendix H-3.6). A decrease of 29 cfs is predicted from Current Conditions (2006), which represents a flow reduction of 49%. (DEIS, Appendix H-1.10). • The modeled 2 cubic feet per second decrease on McQueary Creek represents a reduction in flow of 24% from the Full Use (2016) baseline. A decrease of 3 cubic feet per second is predicted from Current Conditions (2006) which represents a flow reduction of 44%. (DEIS, Appendix H-1.31). (ii) Examples of flow reductions of 1 cfs or less that significantly dewater streams The following are flow changes due to the Moffat Project from 2016 to 2030. These large percentages in flow reduction do not even take into account additional flow reductions that occur between Current Conditions (2006) and Full Use (2016): • Appendix H-3.4 Cub and Buck Creeks shows that flows in average years during the month*

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	C. GUIDELINE – SECTION 230.10(c) *Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations, and tests required by subparts B and G, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts.* 1. DEIS Conclusion **"… it is the opinion of the Corps that the activity will not cause or contribute to significant** degradation of waters of the United States, including adverse effects on human health, life stages of organisms depending on the aquatic ecosystem, ecosystem diversity, productivity **and stability and recreational, 'esthetic' and economic values."** *(DEIS, Appendix K, K-27)* 2. DEIS Conclusion Errors As discussed in more detail in this document, there will be significant degradation of the waters of the United States. Moreover, the DEIS lacks sufficient information and analysis to make the factual findings required by this section (c). a. Adverse Effects to Fish and Aquatic Life The Fraser, Blue and Williams Fork River basins and the Upper Colorado River have suffered dramatic hydrological changes due to transmountain diversion projects that currently divert a large percentage of native stream flows across the Continental Divide. The aquatic environment in several of these streams has already been degraded, as evidenced by elevated stream temperatures, loss of microinvertebrate and native fish populations, sediment accumulation, and the presence of invasive species. The Moffat Project, alone and in combination with other reasonably foreseeable water development, including the Windy Gap Firming Project, has the potential to significantly degrade those conditions further. The DEIS fails to consider existing degradation or to evaluate the potential for the **Project's additional diversions in th**is already depleted system to cause non-linear responses, leading to the loss of aquatic resources. Moreover, the DEIS acknowledges that Moffat Project diversions will cause or contribute to exceedences of stream temperature standards to the point considered to be lethal to fish and **microinvertebrates, but unexplainably concludes such impacts are "negligible" to "moderate." Likewise, the DEIS acknowledges that the Moffat Project diversions will** dry up tributary streams where aquatic life is present, but concludes such effect is **"negligible." Accordingly, no meaningful measures to avoid, minimize or mitigate the Project's admitted degradation of the natural environment are offered.** b. Adverse Effects on Recreational, Aesthetic and Economic Values 84	*of June are expected to be 2 cfs under the No Action Alternative and 1 cfs under the proposed Moffat Project). The predicted 1 cfs stream depletion results in a 52% reduction in flow. • Appendix H-3.27 - McQueary Creek shows that flows in average years during the month of July are expected to be 5 cfs under the No Action Alternative and 4 cfs under the proposed Moffat Project. The predicted 1 cfs depletion results in a 26% reduction in flow. • Appendix H-3.28 - Williams Fork River below Steelman gage shows that flows in average years during the month of August are expected to be 4 cfs under the No Action Alternative and 3 cfs under the proposed Moffat Project. The predicted 1 cfs depletion results in a 28% reduction in flow. The following are flow changes due to the Moffat Project from Current Conditions (2006) to Full Use (2016): • Appendix H-1.12 - Little Vasquez Creek shows that flows in average years during the month of July are expected to be 2 under Current Conditions and 1 cfs under the proposed Moffat Project. A 1 cfs depletion that results in a 54% reduction in flow. • Appendix H-1.7 shows that flows in May of average years will be reduced from 2 cfs under Current Conditions to 0 cfs under the proposed Moffat Project, a 93% flow reduction that will completely dewater the stream. These significant flow reductions can make the difference between a stream that can support aquatic life to one that cannot. See discussion in Part D of this Joint Statement and Comment Letter from Dr. Leroy Poff (March 15, 2010). c. Environmental Consequences Streamflow reductions of the magnitude stated above have the potential to have significant adverse impacts on macroinvertebrate populations, fisheries, habitat connectivity and water quality.* **Response #836-80:** DEIS Section 4.9 and FEIS Section 5.11 evaluated the Project impacts to these streams. In many of the tributary streams to the Fraser River and Williams Fork River, the reductions in peak flows would result

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	The DEIS provides no foundation upon which to conclude this statement with respect to significantly adverse effects on recreation, aesthetic and economic values. There are factual and methodological reasons to conclude that the statement is wrong. (i) **Recreational Values** ***Fishing***. The DEIS contains no discussion of the relationship of stream flow, water quality and water temperature to fishing. Any conclusions regarding the impact on fishing are unsubstantiated. If this research had been conducted, then these relationships would have become apparent. *(Tetra Tech, 2008)* Even though the DEIS acknowledges the Moffat **Project's potential to exceed maximum water temperatures in the Fraser River, St. Louis** Creek, Ranch Creek. *(DEIS, Appendix K, page K-41, K42)*, in Steelman Creek, Bobtail Creek, Jones Creek and McQueary Creek *(DEIS, page K-43)* and in the Colorado River *(DEIS, page K-44)* it concludes elsewhere *(DEIS, pages 4-374, 4-377, 4-431)* there are no recreation or socioeconomic impacts related to fishing. ***Rafting / Kayaking***. The DEIS acknowledges the relationship between stream flow on the Colorado River and Blue River and their suitability for kayaking and rafting. However, it incorrectly concludes that there is a beneficial impact to kayaking on the Colorado River *(DEIS, pages 4-375, 4-377)* and a neutral to beneficial impact on rafting in the Colorado River *(DEIS, pages 4-374, 4-376)*. The DEIS (incorrectly) incorporates stream flow changes due to **the proposed Windy Gap Firming Project in the 2016 "baseline" conditions. According to the** Windy Gap Firming Project DEIS, this Project and its cumulative effects trigger streamflow reductions and related reductions in days suitable for kayaking and rafting of up to 43% on reaches of the Colorado River. 1 ***Resorts Depending on Water-Based Recreation.*** The DEIS provides no discussion of land use in its sections on affected environment, environmental consequences or socioeconomic effects. There is no mention of the relationship between the rivers and tributaries and resort developments in Grand County. There are resort developments in Grand County that **inextricably rely on the Fraser River, the Colorado River and their tributaries. Devil's Thumb** Ranch (Fraser), Winter Park Resort (Fraser River), Elk Trout Lodge (Colorado River) and others rely on healthy and visually appealing streamflow to enhance the visitor experience. (ii) **Aesthetic Values** The DEIS acknowledges the relationship of the visual experience of rivers in mountain communities dependent on **visitation but "concludes" with a dismissive statement that river** water levels fluctuate and visitors expect that. (Page 3-299) It relies upon one study in North Carolina to conclude that viewers react adversely to both low and high streamflow levels. *(DEIS, page 4-404)*. It concludes that the Moffat Project has little impact on lower stream flows which will occur in the winter and early spring months and flow reductions in the summer are within the range of natural variability. [1] Windy Gap Firming Project – Draft Environmental Impact Report (DES 08-30), Tables 3-124, 3-126, 3-127, 3-128, 3-129 and 3-130). 85	in adverse impacts to aquatic resources as discussed in the EIS. In the Fraser River mainstem, the reductions in flow would generally increase habitat availability for fish and invertebrates while still maintaining sediment transport and channel maintenance functions. This would result in negligible to minor beneficial impacts. ***Comment #836-77*** *(ID 4712)**:*** *WATER QUALITY The quality of water in water bodies affected by the Project is already degraded. Additional depletions resulting from operations of the Moffat Project could further degrade water quality, and affect the ability of Wastewater Treatment Providers to meet their discharge permit obligations. 1. The Moffat Project will have significant impacts on water quality. a. DEIS Conclusion The DEIS concludes that the proposed Project will have no significant impacts on water quality in the Fraser River, Williams Fork River, the Blue River and Upper Colorado River and their tributaries as a result of the Moffat Project. It predicts: • "no changes" in water quality in the Fraser River tributaries, (DEIS, page 4-40); • "no changes" in water quality on the Blue River below Green Mountain Reservoir (DEIS, page 4-85); • "minor" impacts on stream temperatures in the main stem of the Fraser River (DEIS, page 4-42); • "minor to negligible impacts are anticipated" to water quality between Dillon and Green Mountain Reservoir on the Blue River (DEIS, page 4-84); • "negligible" impacts on stream temperatures in the Colorado River below Windy Gap Reservoir and at Kremmling (DEIS, page 4-76), and; • "moderate" impacts to stream temperatures in Ranch Creek (DEIS, page 4-41). No other water quality impacts are identified in the DEIS. As a result, the DEIS offers inadequate mitigation to address water quality problems. b. DEIS Conclusion Errors The DEIS conclusions ignore existing, known water quality problems which are likely to be exacerbated by incremental Moffat Project depletions; arbitrarily dismisses admitted Project exceedences of State*

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	Using one example, the DEIS reports that the Moffat Project would trigger average flow reductions on the Fraser River at Vasquez Creek, a highly visible location in the heart of the Town of Winter Park of 37% in June *(DEIS, page 4-37)*. The conclusion that this average stream flow reduction is not noticeable to visitors is unsubstantiated. Further reductions in the visual resources of the Fraser, Williams Fork, Blue and Colorado Rivers and tributaries with high visitor visibility or which are significant assets to adjacent visitor activities or real estate uses may decrease visitation to Grand County and Summit County. To both Counties, **tourism is a "basic sector" industry.** (iii) **Economic Values** **The DEIS acknowledges Grand County's reliance on tourism and recreation.** *(DEIS, page 3-330)*. However, no quantitative basis is provided to connect potential adverse impacts to the Grand County economy, or Summit County, and no basis is provided upon which to judge **whether any impact is "significantly adverse" to the Grand County** economy or not. The scale of the project and the applicant is substantially greater than the scale of Grand **County, using any common criteria. For example, Grand County's population (13,781, US** Census, 2008) is 1.1% of the Denver Water service area (1,293,000 people, www.denverwater.org) What might seem to be insignificant quantities in terms of volume of water diverted, summer recreation opportunities diminished, resort development vacancy increases, agricultural irrigation problems exacerbated or increasing wastewater provider costs have a very significant impacts on Grand County. There are potential significantly adverse impacts on the local economy due to adverse impacts associated with recreation and aesthetic values, described above, plus agricultural impacts and wastewater provide impacts described below. (iv) **Agricultural Uses** The DEIS does not address agricultural land impacts in Grand or Summit Counties at all. If proper field investigation had been conducted, then analysts would have discovered that there are ranchers who use the river, creek and tributaries in the Fraser Valley upstream from Granby for agricultural purposes and report problems with their irrigation ditch operations due to low flows not only during dry years but also during average years. Additional stream flow reductions would further compromise the agricultural irrigation pump intake systems, perhaps to failure in some situations. Significant drops in streamflow and related increases in temperature hamper or prohibit irrigation activity either because there is inadequate pressure or because dead fish and algae clog the irrigation gate network. Additional Moffat Project diversions will trigger lower stream flows that will exacerbate an already troublesome condition. (v) **Wastewater Treatment Plants** Stream depletions in the Fraser and Blue Rivers, as well as fluctuations in Dillon Reservoir, will have impacts to wastewater treatment plants. Examples include: 86	*water quality standards - including acute (lethal) stream temperature levels, as insignificant; uses an arbitrary screening criteria that precludes evaluation of water quality problems created or exacerbated by the Project; omits evaluation of Project effects that can adversely affect water quality – such as reduction of cooling groundwater flows; relies on inaccurate and flawed predictions of Project flow depletions; and fails to assess degradation of water quality that will occur before Full Use (2016) and will likely be aggravated by the Project. As a result, the DEIS information cannot be relied upon to fully evaluate the adverse effects of the Project on the aquatic environment. Nor can its conclusions be relied upon to assess compliance with the Clean Water Act.* **Response #836-77:** Please see the response to Comment ID 4739. ***Comment #836-75*** *(ID 4711)**:*** *Existing, Known Water Quality Problems not Identified The DEIS fails to identify the following known water quality problems or evaluate the extent to which the Moffat Project will cause or contribute to additional degradation: • Chronic copper concentrations exceed water quality standards on the Fraser River downstream of Union Pacific's Moffat tunnel. (DEIS, page 4-39) • Metals and total suspended solids contributions from the Union Pacific's Moffat Tunnel were completely overlooked in the DEIS. • Exceedences of pH standards in the Fraser River continue to occur. (TMWSD, 2005) • Williams Fork Reservoir dissolved oxygen (DO) dips below the State standard in 2003, but there is no evaluation of that event in terms of the linked temperature and DO standard. Flows out of Williams Fork reservoir demonstrate low DO (4mg/L) and high combined nitrate/nitrite readings. (DEIS, page 3-34) • Grand Lake clarity has been significantly degraded and an effort is underway to reduce nutrients and improve the Lake's water quality and clarity.*

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	Chronic copper concentrations in the Fraser River exceed water quality standards and will increase with the reduction in dilution flows associated with additional diversions. This may result in copper limits in wastewater treatment plant discharge permits based on the diluting capability of the Fraser River at low flow. Treatment processes to remove copper would be a significant expense. When releases below Dillon Reservoir drop below 50 cubic feet per second, there will be **impacts to the Silverthorne Joint Sewer Authority's Blue River** Wastewater Treatment Plant **("JSA"). The JSA's discharge permit limits are tied by the CDPHE to the 50** cubic feet per second release from Dillon Reservoir and intervening inflows. The JSA estimates that a flow of 35 cubic feet per second for three days would result in permit changes mandating approximately $5 million in capital costs for new metals removal processes, plus operation and maintenance costs into perpetuity. EPA Region 8 Guidance for Whole Effluent Toxicity testing (August 1997) mandates additional bio-monitoring in situations where the ratio of effluent to stream flow dilution is greater than 10%. This may be the case for the JSA, Winter Park Water and Sanitation District, and Fraser Sanitation District as a result of reduced flows in the Blue and Fraser Rivers and will require substantial additional costs to address. The only wastewater treatment plant evaluated in the Blue River watershed is the JSA. There are three major municipal discharges into Dillon Reservoir that could be affected by the increasingly fluctuating reservoir level associated with the Moffat Project. In order stay in compliance with their permit limits, dischargers may be required to modify their facilities, or to upgrade their treatment plants to be capable of treating to a level that complies with permit limits at the end of pipe. For example, the Snake River Sewer Treatment Plant discharges into the Snake River arm of Dillon Reservoir. If this situation were to impact this plant, costs could range from $400,000 to $1.5 million to extend their discharge pipe out ½ to 2 miles into the reservoir to chase their mixing zone. Their other alternative would be to construct metals removal facilities (estimated cost in 2004 was over $14 million plus annual operations and maintenance costs. Impacts to the Town of Hot Sulphur Springs wastewater treatment plant were not considered. The Town of Hot Sulphur Springs is already having difficulty meeting their permit requirements during low flow months. Reduced flows in the Colorado River, combined with increased incoming nutrients and temperatures, may result in additional violations, which will trigger additional monitoring requirements at additional cost, and over the long term require construction of a new wastewater treatment facility. **D. GUIDELINE – SECTION 230.10(d)** *Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.* **1. DEIS Conclusion** 87	*Contribution of additional nutrients from a more concentrated Fraser River will likely exacerbate nutrient related water quality issues in Grand Lake. • Summer ammonia has been an on-going problem in the Fraser River. High temperatures disassociate ammonia into its toxic form, and temperatures will increase in the Fraser River as more of the headwaters are diverted. • Exceedences of acute (lethal) stream temperature standards in Ranch Creek occurring in July and October. (WQCD Exhibit 4) • Exceedences of acute (lethal) stream temperature standards in the Colorado River (WQCD Exhibit 4). • Exceedences of chronic (MWAT) stream temperature standards in the Colorado River occurring in early July, October and November. (WQCD Exhibit 4). • Exceedences of chronic (MWAT) stream temperature standards in the Blue River, and Ranch Creek and St. Louis Creek. (WQCD Exhibit 4). • Exceedences of maximum weekly average temperature or daily maximum temperature standards for the Fraser River in July and August. (WQCD Exhibit 4)* **Response #836-75:** Please see the response to Comment ID 4707. The Moffat Railroad Tunnel discharge permit was evaluated in the FEIS, including evaluation of potential changes in low flow as applied to the discharge permit. Discharge of copper into the Fraser River by the Moffat Railroad Tunnel is regulated by the State through CDPHE and the National Pollutant Discharge Elimination System (NPDES) discharge permit. Additionally, copper concentrations in the Fraser River were evaluated in greater detail in the FEIS. Please see FEIS Sections 4.6.2 and 5.2. ***Comment #836-73*** *(ID 4710)**:*** *Increased Violations of State Stream Temperature Standards Dismissed as Insignificant Even where it*

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	The DEIS concludes that "All practicable steps have been taken to minimize potential adverse effects to aquatic resources resulting from construction and operation of the Project." (*DEIS, page k-31*). The DEIS also lists measures that will be implemented to minimize impacts of the Moffat Project. (*DEIS, page K-27*). . 2. **DEIS Conclusion Errors** The USACE has offered no measures to minimize acknowledged adverse impacts to the aquatic ecosystem in west slope streams. E. **FACTUAL DETERMINATIONS – SECTION 230.11.** The Section 230.11factual determinations made in the DEIS rely on the analysis of environmental consequences contained in Chapter 4. As more fully described throughout this report, because of the inadequacies and errors throughout the DEIS regarding west slope hydrology and water-based impacts of the project, the factual determinations made in the DEIS in Appendix K are unreliable at best, and often times wrong. Because the factual determinations are not supported, the conclusions with respect to compliance with the 404(b)(1) standards are suspect. 88	*recognizes that operation of the Project will result in increased violation of State stream temperature standards, the DEIS arbitrarily concludes that such exceedences are "negligible," "moderate," or "minor." Ranch Creek. The DEIS admits increases in the daily maximum acute standard exceedences are possible (DEIS, page 4-40). That potential is not quantified, nor is the potential for increased chronic standards (maximum weekly average temperature) violations analyzed. The DEIS concludes the Project's impacts to Ranch Creek are "moderate." (DEIS, page 4-41). Yet, stream temperatures that exceed daily maximum standards are presumed to be lethal to fish and a violation of the Clean Water Act. Mainstem of the Fraser River. The DEIS acknowledges a potential for increased exceedences of daily maximum acute State standards. (DEIS, pages 4-41 and 4-42). Again, without even quantifying the frequency of expected exceedences or evaluating potential increased chronic standards (maximum weekly average temperature) violations, the DEIS simply concludes the Project's impacts on stream temperature in the Fraser River would be "minor." Again, exceedences of daily maximum standards are presumed to be lethal to fish. Colorado River. The DEIS acknowledges a potential for increased exceedences of the maximum weekly average temperature (chronic) temperature standards downstream of Windy Gap Reservoir and at Kremmling (DEIS, page 4-76). The DEIS concludes such impacts are "negligible," without any quantitative analysis. (DEIS, page 4-76). The Colorado River downstream of Windy Gap is designated Gold Medal trout fishery and a candidate for Wild and Scenic Rivers Act in recognition of outstanding fishing. Exceedences of chronic temperature standards leads to a reduction in size and reproduction of fish, which is a "significant impact." Vasquez Creek. The DEIS acknowledges potential stream temperature impacts but simply states that "[i]t is not known if the stream standards*

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	SUPPLEMENTAL TABLES SUPPLEMENTAL TABLE 1A UPCO MODELED CURRENT CONDITIONS - WET YEAR FRASER RIVER NEAR WINTER PARK TOTAL STREAMFLOW (AF)	*for temperature would be exceeded due to the increased diversions." (DEIS, page 4-40). No effort is made to either quantify the frequency of exceedences or determine whether they will result in daily maximum (fatal) or maximum weekly average temperature (chronic) violations. The State's stream temperature standards were developed after a rigorous scientific process involving many stakeholders, including Denver Water. These standards were developed and adopted to protect fisheries from acute (lethal) and chronic impacts of elevated temperature. Any additional exceedences of State temperature standards implies a direct impairment of the aquatic resource and so is significant. Of particular note is the fact that Ranch Creek, the Fraser River and the Colorado River below Windy Gap will be listed by the State as impaired in 2010 (CWA 303(d) list) due to stream temperature exceedences. See WQCD final version of Regulation #93, March 2010.* **Response #836-73:** Please see the response to Comment ID 4707. Additional temperature evaluation was performed for Ranch Creek. Please refer to FEIS Sections 4.6.2 and 5.2. FEIS Sections 3.11, 4.6.11, and 5.11 contain revised discussions of water temperatures and aquatic biological resources. However, the claim that the Colorado temperature standards are assumed to represent lethal limits is incorrect. The temperature standards are regulatory criteria that broadly apply to a range of waters and exist to protect multiple species. The discussions in the FEIS focus on the waters and species present in the Project area. FEIS Section 3.2 has been modified to reflect the 2012 Section 303(d) and M&E List (as available on CDPHE's website as Regulation 93). Information has been added to FEIS Section 3.2 regarding stream segments listed in CDPHE Regulation 93.

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
DEIS Avg*	307	288	307	246	222	246	238	1,845	7,676	3,013	615	417	15,370
1952	246	243	246	246	230	246	479	496	9,803	692	615	417	13,959
1962	291	238	246	250	222	340	677	1,385	1,239	886	615	417	6,806
1983	246	238	246	295	235	278	254	865	12,945	5,277	817	417	22,114
1984	246	239	269	522	697	537	330	6,693	11,722	1,975	685	417	24,331
1986	264	239	246	246	223	272	456	663	5,472	629	615	417	9,743
Average	259	239	250	312	322	334	439	2,020	8,237	1,892	669	417	15,390
Min	246	238	246	246	222	246	254	496	1,239	629	615	417	6,806
Max	291	243	269	522	697	537	677	6,693	12,945	5,277	817	417	24,331
Difference (Max,Avg)	33	3	18	211	375	202	238	4,673	4,709	3,385	148	0	8,941
% Diff (Max,Avg)	11%	1%	7%	40%	54%	38%	35%	70%	36%	64%	18%	0%	37%
Difference (Max,Min)	45	5	23	276	475	291	423	6,197	11,706	4,648	203	0	17,526
% Diff (Max,Min)	16%	2%	8%	53%	68%	54%	62%	93%	90%	88%	25%	0%	72%

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	SUPPLEMENTAL TABLE 1B UPCO MODELED CURRENT CONDITIONS - WET YEAR FRASER RIVER NEAR WINTER PARK AVERAGE STREAMFLOW (CFS) Year | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Avg. DEIS Avg* | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 30 | 129 | 49 | 10 | 7 | 21 1952 | 4 | 4 | 4 | 4 | 4 | 4 | 8 | 8 | 165 | 11 | 10 | 7 | 19 1962 | 5 | 4 | 4 | 4 | 4 | 6 | 11 | 23 | 21 | 14 | 10 | 7 | 9 1983 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 14 | 218 | 86 | 13 | 7 | 31 1984 | 4 | 4 | 4 | 8 | 12 | 9 | 6 | 109 | 197 | 32 | 11 | 7 | 34 1986 | 4 | 4 | 4 | 4 | 4 | 4 | 8 | 11 | 92 | 10 | 10 | 7 | 14 Average | 4 | 4 | 4 | 5 | 6 | 5 | 7 | 33 | 138 | 31 | 11 | 7 | 21 Min | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 8 | 21 | 10 | 10 | 7 | 9 Max | 5 | 4 | 4 | 8 | 12 | 9 | 11 | 109 | 218 | 86 | 13 | 7 | 34 Difference (Max,Avg) | 1 | 0 | 0 | 3 | 6 | 3 | 4 | 76 | 79 | 55 | 2 | 0 | 12 % Diff (Max,Avg) | 11% | 1% | 7% | 40% | 53% | 38% | 35% | 70% | 36% | 64% | 18% | 0% | 37% Difference (Max,Min) | 1 | 0 | 0 | 4 | 8 | 5 | 7 | 101 | 197 | 76 | 3 | 0 | 24 % Diff (Max,Min) | 16% | 2% | 8% | 53% | 67% | 54% | 62% | 93% | 90% | 88% | 25% | 0% | 72% Modeled current conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002). *DEIS average flow rates (cfs) from DEIS Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for the average, minimum, maximum, difference, and percent difference calculations. 90	As discussed in FEIS Sections 4.6.11 and 5.11, the fisheries in the Fraser and Colorado rivers would continue to function if the Project is implemented. The Gold Medal reaches on the Colorado River are expected to continue to merit Gold Medal status. Data presented in FEIS Section 3.11 indicate that there has not been a decline in these fisheries in the last few decades. Wild and Scenic Rivers Act The most recent and updated version of the Upper Colorado River Wild and Scenic Stakeholder Group Management Plan, dated January 2012, was provided to the BLM and reviewed and included as a consulted resource in the FEIS. In 2006, the Kremmling and Glenwood Springs field offices of the BLM began the eligibility phase of a Wild and Scenic Rivers evaluation as part of their RMP revision process. The Wild and Scenic Rivers study process is composed of two main components: the eligibility phase and the suitability phase. The eligibility phase involves identifying eligible rivers and stream segments, and determining a tentative classification (i.e., Wild, Scenic, or Recreational). To be eligible for designation, a river must be free flowing and contain at least one ORV that is scenic, recreational, geological, fish-related, wildlife-related, historic, cultural, botanical, hydrological, paleontological, or scientific. Upon conclusion of the eligibility phase, the BLM prepared a Wild and Scenic Eligibility Report that identified five river segments within the Moffat Project EIS study area (portions of the Colorado and the Blue rivers) that were eligible for inclusion in the NWSRS (BLM 2007). The Wild and Scenic Suitability Report followed in April 2010. In the report, the BLM states: “The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate

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	TABLE 2A UPCO MODELED ALTERNATIVE 1A - WET YEAR FRASER RIVER NEAR WINTER PARK TOTAL STREAMFLOW (AF) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Total DEIS Avg* 307 238 307 246 222 246 238 984 5,534 2,890 615 417 12,244 1952 246 243 246 246 230 246 479 496 10,152 615 615 417 14,230 1962 289 238 246 251 222 338 677 821 687 615 615 417 5,415 1983 246 238 246 295 235 276 255 517 12,913 3,131 682 417 19,451 1984 247 239 271 351 308 459 331 5,388 8,386 2,051 691 417 19,140 1986 264 239 246 248 224 272 455 663 3,193 658 615 417 7,494 Average 267 239 260 273 240 306 406 1,478 6,811 1,660 639 417 12,996 Min 246 238 246 246 222 246 238 496 687 615 615 417 5,415 Max 307 243 307 351 308 459 677 5,388 12,913 3,131 691 417 19,451 Difference (Max, Avg) 41 4 47 79 68 153 271 3,910 6,102 1,471 52 0 6,456 % Diff (Max, Avg) 13% 1% 15% 22% 22% 33% 40% 73% 47% 47% 8% 0% 33% Difference (Max, Min) 61 5 61 105 86 213 439 4,892 12,226 2,516 76 0 14,036 % Diff (Max, Min) 20% 2% 20% 30% 28% 46% 65% 91% 95% 80% 11% 0% 72% 91	additions to the NWSRS by considering tradeoffs between corridor development and river protection." Those segments of the Colorado River between Kremmling and Glenwood Springs were determined to be eligible. The Kremmling and Glenwood Springs field offices of the BLM addressed this issue in separate Draft RMPs/EISs that were released in 2011. The preferred alternative in both RMPs includes a determination that much of the Colorado River between Kremmling and Glenwood Springs is suitable for inclusion in the Wild and Scenic Rivers Act. A variation of the preferred alternative in both field offices would defer designation by adopting and implementing the Stakeholder Group Management Plan. If monitoring indicates that the Stakeholder Group Management Plan was not providing an adequate level of protection, BLM would initiate a process to evaluate suitability at a future date. The recreation analysis in the EIS did evaluate effects of the Project alternatives on the Colorado River below Kremmling (see DEIS Section 4.13.1.2). The Corps coordinated with the BLM regarding the Wild and Scenic River designation process throughout the NEPA process; however, the Corps does not use its authorities to protect those segments under the BLM study for determination in a greater capacity than it does all waterways under its jurisdiction. The Corps' direct and cumulative impact analysis shows that minor impacts would result from implementation of the action alternatives. These results were then interpreted to find that the alternatives would likely not affect the suitability of the eligible segments for inclusion in the NWSRS. This conclusion was added to the FEIS. ***Comment #836-72*** *(ID 4709)**:*** *Screening Criteria Precludes Evaluation of Adverse Effects. Use of water quality screening criteria ignores potential water quality degradation caused by the Moffat Project. The DEIS (DEIS, page 4-22) limits its review of water quality impacts resulting*

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	SUPPLEMENTAL TABLE 2B UPCO MODELED ALTERNATIVE 1A - WET YEAR FRASER RIVER NEAR WINTER PARK AVERAGE STREAMFLOW (CFS) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Avg DEIS Avg* 5 4 5 4 4 4 4 16 93 47 10 7 17 1952 4 4 4 4 4 4 8 8 171 10 10 7 20 1962 5 4 4 4 4 6 11 13 12 10 10 7 7 1983 4 4 4 5 4 4 4 8 217 51 11 7 27 1984 4 4 4 6 5 7 6 88 141 33 11 7 26 1986 4 4 4 4 4 4 8 11 54 11 10 7 10 Average 4 4 4 5 4 5 7 26 119 23 10 7 18 Min 4 4 4 4 4 4 4 8 12 10 10 7 7 Max 5 4 4 6 5 7 11 88 217 51 11 7 27 Difference (Max,Avg) 1 0 0 1 1 2 4 62 98 28 1 0 9 % Diff (Max,Avg) 11% 1% 7% 21% 19% 31% 35% 71% 45% 55% 7% 0% 33% Difference (Max,Min) 1 0 0 2 1 3 7 80 205 41 1 0 20 % Diff (Max,Min) 15% 2% 9% 30% 25% 46% 62% 91% 95% 80% 11% 0% 72% Alternative 1a conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002) and include full build out, the preferred alternative for the Moffat expansion project, and Windy Gap Firming Project. *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations. 92	*from the proposed project to those identified situations where: • PACSM predicts a change in stream flow of 15% or more between Full Use (2016) conditions and an analyzed alternative. • The stream segment is currently exceeding water quality standards • The stream segment is currently listed on the 303(d) or Monitoring and Evaluation list • The stream segment has an existing total maximum daily load. For stream temperature impacts, the DEIS also qualitatively looks at streams where existing temperature conditions are near (within 1°C) of State stream temperature standards. (DEIS, pages 4-40 to 4-42) This screening approach limits the DEIS's evaluation of impacts of the Moffat Project to situations where water quality is already a problem. It entirely disregards water quality conditions that are not a problem today but will become so due to operation of the Moffat Project in the future. It entirely disregards water quality problems that will arise in the intervening years between Existing (2006) and Full Use (2016) conditions, and would be further exacerbated by the Project.* **Response #836-72:** The screening criteria included multiple criteria, including the 15%, but also segments listed on the Section 303(d) or M&E List, or having constituents at or near regulatory limits. The Corps believes this is an appropriate screening methodology for EIS analysis. Please refer to the reorganized format of the FEIS, which provides for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project (2032).

Comment Information	Comment	Comments and Responses
	SUPPLEMENTAL TABLE 3A UPCO MODELED CURRENT CONDITIONS - DRY YEAR FRASER RIVER NEAR WINTER PARK STREAMFLOW (AF) Year | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Total DEIS Avg* | 246 | 238 | 246 | 246 | 222 | 246 | 238 | 492 | 476 | 492 | 492 | 357 | 3,991 1954 | 246 | 238 | 246 | 246 | 222 | 246 | 349 | 470 | 595 | 615 | 615 | 417 | 4,505 1955 | 246 | 238 | 246 | 246 | 222 | 245 | 376 | 561 | 595 | 615 | 615 | 417 | 4,621 1963 | 246 | 238 | 246 | 287 | 248 | 304 | 477 | 504 | 595 | 615 | 615 | 417 | 4,791 1977 | 246 | 238 | 246 | 246 | 222 | 247 | 378 | 538 | 644 | 615 | 615 | 417 | 4,651 1981 | 246 | 238 | 246 | 246 | 222 | 270 | 424 | 513 | 780 | 615 | 615 | 417 | 4,831 Average | 246 | 238 | 246 | 254 | 227 | 262 | 401 | 517 | 642 | 615 | 615 | 417 | 4,680 Min | 246 | 238 | 246 | 246 | 222 | 245 | 349 | 470 | 595 | 615 | 615 | 417 | 4,505 Max | 246 | 238 | 246 | 287 | 248 | 304 | 477 | 561 | 780 | 615 | 615 | 417 | 4,831 Difference (Avg,Min) | 0 | 0 | 0 | 8 | 5 | 18 | 52 | 47 | 47 | 0 | 0 | 0 | 175 % Diff (Avg,Min) | 0% | 0% | 0% | 3% | 2% | 7% | 13% | 9% | 7% | 0% | 0% | 0% | 4% Difference (Max,Min) | 0 | 0 | 0 | 41 | 26 | 60 | 128 | 90 | 185 | 0 | 0 | 0 | 326 % Diff (Max,Min) | 0% | 0% | 0% | 14% | 11% | 20% | 27% | 16% | 24% | 0% | 0% | 0% | 7% 93	***Comment #836-71*** *(ID 4708)**:*** *Impacts to small tributaries not evaluated. Although it is true that the greatest volume of water will be removed during runoff, the DEIS anticipates reductions in bypass flows on tributaries (DEIS, Appendix H, Table H-1.51) in dry years and some reductions in base flows. In addition, the DEIS (DEIS, Appendix H 3.3, 3.8, 3.9, 3.11, 3.13, 3.15, 3.18, 3.20, 3.24-3.28) shows flow reductions on tributary creeks without bypass flows that, while individually may be less than 0.5 cubic feet per second, nonetheless represent 20%-100% reductions in flow for those tributaries, in many cases throughout the year. It is during these situations when water quality problems are more likely to occur, yet they have not been evaluated. Several tributaries that currently have no bypass flow requirement are dry most of the year and will have additional water diverted out by project making them dry more months out of the year. See DEIS tables H-1.7, H-1.8, H-1.12, H-1.15, H-1.19* **Response #836-71:** Additional information was included in FEIS Sections 3.1 and 5.3 on historical bypass flow reductions and bypass flow reductions that would occur between Current Conditions and Full Use of the Existing System. Information was included on the magnitude, time of year and location at which bypasses would be reduced. Any reduction in bypass flows would be a function of Denver Water's existing operations, not the proposed Moffat Project. Since the Proposed Action increases Denver Water's firm yield, system reliability and flexibility, the frequency and magnitude of bypass flow reductions in the Fraser River basin, if needed, could potentially decrease. Information was also added to FEIS Section 5.3 on the increased frequency and duration that streamflows would be reduced to minimum USFS bypass flows and tributaries without bypass requirements would be dried up.

Comment Information	Comment	Comments and Responses
	SUPPLEMENTAL TABLE 3B UPCO MODELED CURRENT CONDITIONS - DRY YEAR FRASER RIVER NEAR WINTER PARK AVERAGE STREAMFLOW (CFS) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Avg DEIS Avg* 4 4 4 4 4 4 4 8 8 8 8 6 6 1954 4 4 4 4 4 4 6 8 10 10 10 7 6 1955 4 4 4 4 4 4 6 9 10 10 10 7 6 1963 4 4 4 5 4 5 8 8 10 10 10 7 7 1977 4 4 4 4 4 4 6 9 11 10 10 7 6 1981 4 4 4 4 4 4 7 8 13 10 10 7 7 Average 4 4 4 4 4 4 7 8 11 10 10 7 6 Min 4 4 4 4 4 4 6 8 10 10 10 7 6 Max 4 4 4 5 4 5 8 9 13 10 10 7 7 Difference (Avg,Min) 0 0 0 0 0 0 1 1 1 0 0 0 0 % Diff (Avg,Min) 0% 0% 0% 3% 2% 7% 13% 9% 7% 0% 0% 0% 4% Difference (Max,Min) 0 0 0 1 0 1 2 1 3 0 0 0 0 % Diff (Max,Min) 0% 0% 0% 14% 11% 20% 27% 16% 24% 0% 0% 0% 7% Modeled current conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002). *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations. 94	There is no existing water quality information on the small tributaries referred to, however, there are also no impacts from dischargers to these small tributaries. Thus, water quality is not expected to change substantially from Current Conditions. ***Comment #836-70*** *(ID 4707)**:*** *Impacts to stream temperature. The Fraser River and most tributaries are significantly impacted now as evidenced by exceedences of State stream temperature standards protective of aquatic life. These temperature problems will get worse as more water is diverted between Existing (2006) and Full Use (2016) conditions. Then the project will make the situation even worse by diverting more water. The following example demonstrates how the screening criteria would ignore water quality degradation for a problem that is already well documented. Table 10 excerpts stream flow data in cubic feet per second from the DEIS for selected river and stream segments to demonstrate pending changes during August, September and October, critical months for fisheries that would be affected by increasing temperature. As the table shows, there will be significant flow reductions. However, because flow reductions between Full Use (2016) and Full Use w/Project (2030) will be less than 15%, the DEIS screening criteria precluded evaluation of the effect of these changes on water quality. This is in spite of the fact that the State has identified these segments as having existing temperature problems and future depletions will reduce flows in some cases by more than 50% increasing stream temperature in 2016. These problems would be compounded by the Moffat Project. [See TABLE 10: STREAMFLOW DATA SELECTED SEGMENTS OF THE FRASER RIVER, COLORADO RIVER, RANCH CREEK AND ST. LOUIS CREEK in Source File.] As the table shows, the DEIS screening criteria precluded evaluation of the extent to which the Moffat Project will further degrade known acute (lethal) stream temperature problems in the Fraser*

Comment Information	Comment	Comments and Responses
	SUPPLEMENTAL TABLE 4A UPCO MODELED ALTERNATIVE 1A - DRY YEAR FRASER RIVER NEAR WINTER PARK STREAMFLOW (AF) Year | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Total DEIS Avg* | 246 | 238 | 246 | 246 | 222 | 246 | 238 | 492 | 476 | 492 | 492 | 357 | 3,991 1954 | 246 | 238 | 246 | 246 | 222 | 246 | 350 | 470 | 595 | 615 | 615 | 417 | 4,505 1955 | 246 | 238 | 246 | 246 | 222 | 245 | 375 | 560 | 595 | 615 | 615 | 417 | 4,620 1963 | 246 | 238 | 246 | 286 | 248 | 303 | 476 | 504 | 595 | 615 | 615 | 417 | 4,788 1977 | 246 | 238 | 246 | 246 | 222 | 247 | 376 | 538 | 643 | 615 | 615 | 417 | 4,649 1981 | 246 | 238 | 246 | 246 | 222 | 270 | 422 | 513 | 780 | 615 | 615 | 417 | 4,830 Average | 246 | 238 | 246 | 254 | 227 | 262 | 400 | 517 | 642 | 615 | 615 | 417 | 4,678 Min | 246 | 238 | 246 | 246 | 222 | 245 | 350 | 470 | 595 | 615 | 615 | 417 | 4,505 Max | 246 | 238 | 246 | 286 | 248 | 303 | 476 | 560 | 780 | 615 | 615 | 417 | 4,830 Difference (Avg,Min) | 0 | 0 | 0 | 8 | 5 | 18 | 50 | 47 | 47 | 0 | 0 | 0 | 173 % Diff (Avg,Min) | 0% | 0% | 0% | 3% | 2% | 7% | 13% | 9% | 7% | 0% | 0% | 0% | 4% Difference (Max,Min) | 0 | 0 | 0 | 40 | 26 | 59 | 126 | 90 | 185 | 0 | 0 | 0 | 325 % Diff (Max,Min) | 0% | 0% | 0% | 14% | 11% | 19% | 26% | 16% | 24% | 0% | 0% | 0% | 7% 95	*River that occur in July and in Ranch Creek during July and October. The screening criteria also precluded evaluation of the Project's effect on known chronic problems in the Colorado River in early July and in October.* **Response #836-70:** A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). The level and method of evaluation is appropriate for an EIS because the screening method included multiple criteria, including 15% flow reduction, but also stream segments listed on the Section 303(d) or M&E List, or having constituents at or near regulatory limits. ***Comment #836-68*** *(ID 4706)**:*** *Groundwater Recharge Flows Impacts due to reduction of cooling groundwater recharge flows are ignored. The Fraser River watershed is encompassed in Denver Water's horseshoe shaped collection system that intercepts surface runoff and tributary flows from between 10,000 feet and 9,300 feet before that water reaches the river or infiltrates to groundwater. Recent studies have shown the role of groundwater in providing for streamflows in small headwater catchments is more significant than previously thought (Lui, et.al., 2004). USGS has indicated that groundwater temperature in the Fraser River alluvium is consistently below 10 degrees centigrade, with the lowest temperature recorded at 4 degrees centigrade (Bauche & Bails, 2004). Reducing recharge to groundwater in the high altitude reaches by intercepting runoff with the Moffat Collection System will reduce groundwater recharge into the river throughout the year. In late summer, when groundwater recharge to the river should account for the majority of stream flow reductions in cold groundwater recharge will reduce the moderating effect of that recharge on stream*

Comment Information	Comment	Comments and Responses
	SUPPLEMENTAL TABLE 4B UPCO MODELED ALTERNATIVE 1A - DRY YEAR FRASER RIVER NEAR WINTER PARK AVERAGE STREAMFLOW (CFS) Year / Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Avg DEIS Avg* 4 4 4 4 4 4 4 8 8 8 8 6 6 1954 4 4 4 4 4 4 6 8 10 10 10 7 6 1955 4 4 4 4 4 4 6 9 10 10 10 7 6 1963 4 4 4 5 4 5 8 8 10 10 10 7 7 1977 4 4 4 4 4 4 6 9 11 10 10 7 6 1981 4 4 4 4 4 4 7 8 13 10 10 7 7 Average 4 4 4 4 4 4 7 8 11 10 10 7 6 Min 4 4 4 4 4 4 6 8 10 10 10 7 6 Max 4 4 4 5 4 5 8 9 13 10 10 7 7 Difference (Avg,Min) 0 0 0 0 0 0 1 1 1 0 0 0 0 % Diff (Avg,Min) 0% 0% 0% 3% 2% 7% 13% 9% 7% 0% 0% 0% 4% Difference (Max,Min) 0 0 0 1 0 1 2 1 3 0 0 0 0 % Diff (Max,Min) 0% 0% 0% 14% 11% 19% 26% 16% 24% 0% 0% 0% 7% Alternative 1a conditions are based upon the UPCO PACSM Data Display Tool (January 3, 2002) and include full build out, the preferred alternative for the Moffat expansion project, and Windy Gap Firming Project. *DEIS average flow rates (cfs) from Table H-1.10. DEIS average monthly flow volumes (af) were calculated by assuming that the average monthly flow rate remained constant for 24 hours a day, and 31, 30, or 28 days per month. These rows were included to illustrate their discrepancies with the UPCO averages only. UPCO data was used for all of the average, minimum, maximum, difference, and percent difference calculations. 96	*temperatures, and will contribute to increased temperatures in the Fraser River and tributaries. These impacts were not evaluated.* **Response #836-68:** The DEIS evaluates the potential impacts of the Project on groundwater recharge, as well as the potential for reduced groundwater outflow (discharge) to streams. However, this comment reflects confusion in the hydrologic terminology for groundwater recharge and groundwater discharge. The comment refers to “reduction of cooling groundwater recharge flows” when the actual meaning of this phrase from the context does not have to do with groundwater recharge but instead pertains to groundwater discharge to streams (outflow of groundwater into streams). Groundwater recharge (inflow to the groundwater flow system) and groundwater discharge into streams (outflow from the groundwater flow system) would not be substantially reduced because the proposed Project would not make any changes to the diversion structure locations or physical features of any of the existing Denver Water diversion structures west of the Continental Divide, and the increased diversions would only occur during the high runoff periods during wet and average years. Further rationale for this conclusion is provided in the FEIS and the information below. FEIS Figure 3.4-1 shows the Denver Water diversions (red dots) within the Fraser River basin and subdivides the watershed into areas to facilitate discussion of this concern. Throughout the blue-shaded and brown-shaded areas on Figure 3.4-1, groundwater recharge rates would remain the same as for Current Conditions, both in the upland areas and along the stream channels, because these areas lie upstream of the Denver Water diversion points. The blue and brown areas on Figure 3.4-1 constitute a large percentage of the whole

Comment Information	Comment	Comments and Responses
	ACRONYMS AF acre feet af/yr acre feet per year C-BT Colorado Big Thompson CDOW Colorado Division of Wildlife CDPHE Colorado Department of Public Health and Environment CDPS Colorado Department of Public Safety CFS cubic feet per second Corps U.S. Army Corps of Engineers CWA – Clean Water Act CWCG Colorado Water Conservation Board DEIS Draft Environmental Impact Statement DM daily maximum DO dissolved oxygen EPA Environmental Protection Agency GCSMP Grand County Stream Management Plan IFIM Instream flow incremental methodology IRP Integrated Resources Plan (Denver Water) JSA Joint Sewer Authority MWAT- Maximum weekly average temperature PACSM Platte and Colorado Simulation Model pH Potential of Hydrogen SSTEMP Stream Segment Temperature (Model) TMDL total maximum daily load UPCO Upper Colorado River Basin Study WPWSD Winter Park Water and Sanitation District WQCC (Colorado) Water Quality Control Commission WWTP Wastewater Treatment Plant 97	watershed. This relatively large area includes the highest land surface elevations, precipitation rates, and snowpack amounts in this watershed. High groundwater recharge rates occur throughout the blue and brown areas on Figure 3.4-1. Recharge rates would not change in any of those areas as a consequence of the Project because those areas are not downstream of any proposed diversion points. The rate at which groundwater discharges to streams down-gradient of the recharge areas is largely determined by the groundwater recharge rates and topographic elevations. The geologic map from a USGS Technical Report referenced in the DEIS Section 3.2 (Apodaca and Bails 1999) shows glacial deposits and alluvial gravels underlie large portions of the watershed. Fractured crystalline rocks are also exposed in many areas of the watershed highlands. Precipitation and snowmelt infiltrate though permeable soils, sedimentary deposits and fractured rocks in upland areas of the basin to become groundwater recharge. Similar hydrogeologic conditions exist in the areas surrounding the Denver Water diversion structures in the Williams Fork watershed. Groundwater recharge in the upland areas of the watershed causes groundwater to flow toward lower elevation areas of the watershed. A recent USGS Technical Report (Apodaca and Bails 1999) for the Fraser River basin, which is cited in the DEIS Section 4.2, shows a water table map (groundwater level contour map) that reveals the groundwater flow patterns in the central portion of the Fraser River watershed. Hydraulic gradients indicated by the groundwater level contours show groundwater flow directions converge toward the streams in the central portions of the watershed downstream of the Denver Water diversion points. Where water table contours show groundwater flow converging toward streams, this indicates streams are receiving shallow groundwater discharge. The pattern of groundwater

Comment Information	Comment	Comments and Responses
	REFERENCES Albano, Christine M., 2006. Thesis: *Structural and Functional Responses of Aquatic Macroinvertebrate Communities to Streamflow Diversion in Rocky Mountain Streams. (Albano, 2006)* Bauche. N.J. and J.B. Bails. 2004. Water-Quality Characteristics and Ground-Water Quantity of the Fraser River Watershed, Grand County, Colorado, 1998-2001, USGS WRIR 03-4275. *(Bauche and Bails, 2004)* Bledsoe, Brian, March 16, 2010. Letter to Scott Franklin, USACE, *re: Draft Environmental Impact Statement - Moffat Collection System Project. (Bledsoe, 2010)* Buffington, J., Ruggiero, L., Rocky Mountain Research Station, Forestry Science Lab – Boise, ID. *Core Watershed Research Quantified and Defines the Dynamics of Hydrologic, Geomorphic and Biological Processes in Forests and Rangelands.* Accessed at http://www.reeis.udsa.gov/web/crisprojectpages/413551.html *(Buffington et.al)* Coley/Forrest, Inc. Grand County: Its Economy and Water Resources. Prepared for Grand County. July 2007. *(Coley/Forrest, 2007a)*. Coley/Forrest, Inc. Significance of Flushing Flows. Prepared for Grand County. November 2007. *(Coley /Forrest, 2007b)* Colorado Division of Wildlife. 2009. Colorado Herpetological Atlas. Accessed at: http://ndis.nrel.colostate.edu/herpatlas/coherpatlas/. *(CDOW, 2009)* **Colorado Water Quality Control D…..Rationale for Segments and Parameters Proposed for** Inclusion in Regulation No. 93, Dec. 8, 2009 *(WQCD, 2009)* Colorado Water Conservation Board, Water Supply Availability Study, accessed via http://cwcb.state.co.us/WaterInfo/CRWAS *(CWCB)* Council on Environmental Quality. ***"Forty Most Asked Questions Concerning NEPA – Question 2A"***, accessed at http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm *(CEQ, 40)* **Council on Environmental Quality, Nancy H. Sutley. Memorandum: "Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions."** February 18, 2010. *(CEQ, 2010)* Council on Environmental Quality. Letter from James Inhofe and John Barasso, December 29, 2009. *(CEQ, 2009)* 98	level contours also indicates that the principal recharge areas are in higher elevation areas of the watershed and upland areas in between the stream valleys. Thus the principal recharge areas are hydraulically up-gradient of the streams. Groundwater flows from the up-gradient recharge areas toward down-gradient discharge areas along the streams. Therefore, groundwater discharge rates would not change in areas along streams that are down-gradient of the groundwater recharge areas. Above the proposed diversion points the stream channel percolation would not change due to the Project at any time of year. Moreover, in areas downstream of the diversions but outside the stream channel limits (all the white areas on Figure 3.4-1), there would be no change in groundwater recharge rates because the hydrogeologic factors controlling infiltration of precipitation and snowmelt would not be altered. Therefore, the proposed diversions would have no effect on groundwater recharge rates or groundwater discharge rates throughout the vast majority of the Fraser River watershed area, which includes all the blue, brown and white areas on Figure 3.4-1. For the same reasons, the proposed diversions would have no effect on groundwater recharge rates throughout the vast majority of the Williams Fork River watershed area. Nonetheless the increased diversions may cause slight reductions of the stream levels downstream of the diversion points along the stream channels (highlighted in gold) within the white areas of Figure 3.4-1, which has the potential for reducing groundwater recharge directly beneath the stream channels downstream of the diversion points. However, this effect is expected to be very small because most groundwater recharge in the watershed occurs in the upland areas above the streams, which would not be affected in any way by the Project. The only areas in which there is a potential for the Project to affect groundwater

Comment Information	Comment	Comments and Responses
	Council on Environmental Quality. January, 1997. Considering Cumulative Effects Under the National Environmental Policy Act. Council on Environmental Quality, Executive Office of the President, January 1997. *(CEQ, 1997)* Ecological Resource Consultants, Inc. 2006. Moffat Collection System Project - Existing Channel Conditions Report, page 11 *(ERC, 2006)* Groffman, P.M., J.S. Baron, T. Blett, A.J. Gold, I. Goodman, L.H. Gunderson, B.M. Levinson, M.A. Palmer, H.W. Paerl, G.D. Peterson, N.L. Poff, D.W. Rejeski, J.F. Reynolds, M.G. Turner, K.C. Weathers, and J. Wiens. 2006. Ecological Thresholds: The key to successful environmental management or an important concept with no practical application? Ecosystems *9*:1-13. *(Groffman, et.al., 2006)* Liu, Fengjing, Williams, Mark W., and Caine, Nel, 2004, Source water and flow paths in alpine catchment, Colorado Front Range, United States; Water Resources Research, Vol. 40, W09401. *(Liu, et.al., 2004)* McCarthy, Julia M., 2008. Thesis: *Factors Influencing Ecological Recovery Downstream of Diversion Dams in Southern Rocky Mountain Streams. (McCarthy, 2008).* Nehring R.B, J. Ewert and S. Hebein. January 2010. A review of aquatic invertebrate studies and fish population survey data for the Colorado River in Middle Park, Colorado from 1980 through 2009: What does it tell us? A Colorado Division of Wildlife Report. *(Nehring, 2010)* Null, S.E., M.L. Deas, J.R. Lund. 2009. Flow and Water Temperature Simulation for Habitat Restoration in the Shasta River, California. River Research and Applications. Wiley InterScience DOI: 10.1002/rra.1288 *(Null, et.al. 2009)* PASCM Data Requests; letter and emails to J. Scott Franklin, Denver Regulatory Office, US Army Corps of Engineers. May 18, 2009; January 11, 2020; February 3, 2010. *(PASCM Requests, 2009-2010)* Poff, N.L., March 15, 2010. Letter to Scott Franklin, USACE, *re: Comments on Moffat Collection Expansion Project, DEIS. (Poff, 2010)* Poff, N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegaard, B.D. Richter, R. E. Sparks & J.C. Stromberg. 1997. The Natural Flow Regime: A Paradigm for River Conservation and Restoration. Bioscience 47(11): 769-784. *(Poff, et.al, 1997)* Redding, Todd and Robin Pike. Streamline Watershed Management Bulletin Vol 11 / No. 1 Fall 2007. Mountain Pine Beetle and Watershed Hydrology: Workshop Summary. Accessed at http://www.forrex.org/Streamline/ISS36/streamline_vol11_no1_art5.pdf *(Redding and Pike, 2007)* 99	recharge and discharge are those areas immediately along the stream channels, directly downstream of the existing Denver Water diversion structures. Stream channels within the Fraser River watershed are depicted with light blue lines on Figure 3.4-1. If the Project causes a stream level to be lower during the high runoff period, this could cause less percolation from the stream and less extensive overbank flooding. In evaluating the significance of the peak stream flow reduction with respect to groundwater recharge and discharge, the DEIS Section 4.2 points out that stream flow reductions could cause some reduction in the groundwater levels and, in losing reaches, may temporarily reduce local recharge rates during the high-flow period directly beneath the stream channels (blue lines downstream of the proposed diversions). Groundwater recharge rates would decline only where (1) the stream reach is losing water by seepage to groundwater under Current Conditions, and (2) the diverted stream flow causes a substantial decrease in the stream level and the wetted area of the stream bed. Information provided in the DEIS indicates there would be, at most, very small changes in groundwater recharge directly beneath potentially affected stream segments. Streambed percolation rates would remain essentially the same as for Current Conditions because: (1) stream levels and wetted areas of the streams would only change by a very small amount, and (2) the hydraulic conductance (permeability) of the streambed materials would not be affected by the Moffat Project. Stream flow changes were modeled using the PACSM (described in DEIS Section 3.1), and riparian and wetlands areas are characterized in Section 3.6.5. Details of the methodology used to estimate stream flow changes are presented in DEIS Section 4.1. Details of the methodology used to estimate changes in flood flows, stream water levels

Comment Information	Comment	Comments and Responses
	Scheffer, M. & S. R. Carpenter. 2003. *Catastrophic regime shifts in ecosystems: linking theory to observation.* Trends in Ecology and Evolution 18(12):648-656. *(Scheffer and Carpenter, 2003)* Stednick, John D., PhD, Ryan Jensen. Effects of Pine Beetle Infestations on Water Yield and Water Quality at the Watershed Scale in Northern Colorado. Colorado Water, May/June 2008, Volume 25, Issue 3. *(Stednick and Ryan, 2008)* Tabernash Meadows Water & Sanitation District, *Water Quality Assessment*, CO-0045501, pg 6 of 14, RTO/PU/August 2005 (TMWSD, 2005) Tetra Tech. *Grand County Stream Management Plan Phase 2.* Prepared for Grand County. April 2008 *(Tetra Tech, 2008)* Upper Colorado River Basin Study, Phase II, Final Report. May 2003. Hydrosphere Resource Consultants, Inc. (*UPCO, 2003)* Wesche, Tom. 2009. Grand County Stream Management Plan Phase 3a Preliminary Results, Presentation on December 18, 2009 *(Wesche, 2009)* Western Water Assessment. *Climate Change in Colorado – A Synthesis to Support Water Resources Management and Adaptation.* A report for the Colorado Water Conservation Board. 2008. Page 43 *(WWA, 2008)* Windy Gap Firming Project – Draft Environmental Impact Report (DES 08-30), Tables 3-124, 3-126, 3-127, c-128, c-129 and 3-130). (WGFP DEIS, 2008) 100	and wetted areas are presented in DEIS Section 4.6. Streambed percolation rates are expected to decrease by a negligible amount because the timing of the diversions would coincide with high runoff periods in wet or average years. Appendix H-5 provides a series of flow duration curves based on PACSM results for a number of locations along the Fraser River and tributaries downstream of the diversion points. Flow duration curves are shown in Figures H-5.1 through H-5.11 for several locations of interest in the Fraser River basin. Those curves indicate that the potential changes in flow durations attributable to the Project would be small, and would occur mainly during higher runoff periods, which typically correspond with wet years. Table H-6.1 shows the percentage of days from May through June that flow changes would occur at several locations of interest. There would be little to no change in flow (flow change less than 1 cfs) more than 80% of the time at all locations in the basin upstream of the confluence with St. Louis Creek. Below the confluence with St. Louis Creek there would be little to no change in flow (flow change less than 1 cfs) between 70% and 80% of the time. Hydraulic modeling using the HEC-RAS model has been conducted to analyze the changes in stream flows and flood inundation area, at representative sites downstream of the diversion points. As part of the impact assessment for wetland and riparian areas, DEIS Section 4.6.1.2 provides an analysis of the interaction between stream flow changes and inundated areas in the affected drainage. Table 4.6-4 provides predicted changes in stream levels and channel widths for four detailed study sites along streams in the Fraser River watershed. The modeling results indicate Site FR1 near Winter Park would have the largest reduction in stream level due to the Denver Water diversions; the peak stream level during a 2-year flow event would drop about 8 inches in that reach.

Comment Information	Comment	Comments and Responses
		The HEC-RAS model results also show changes in the wetted channel width at Site FR1 would be about 1.6 feet, which is very small in comparison to the existing 2-year water profile. DEIS Figure 4.6-1 illustrates the very small change in the 2-year water profile (stream width) that would be caused by the Proposed Action. Even extrapolating over a larger stream length, the reductions of flow-wetted area would be very small (e.g., a 1-mile stream segment would experience a reduction in inundated area of about 0.4 acre). In summary, the proposed diversions are expected to have minor direct impacts on groundwater levels, recharge rates and discharge rates. Declining stream levels would likely cause minor reductions in groundwater levels immediately adjacent to the streams. Overall, groundwater recharge rates and discharge rates throughout the West Slope watersheds would not change substantially. In wet and average years, the net effect of the Moffat Project on groundwater levels is expected to be negligible. During dry years, there would be no additional water diversions, and thus, the Project would not impact groundwater levels or recharge rates. The monitor well installation and field data collection activities performed by the Corps in the fall of 2010 provide measurements of groundwater level elevations and adjacent stream water level elevations at several locations in the Fraser River watershed downstream of Denver Water diversion points. In addition, precision surveying of ground surface elevations at existing shallow wells at the town of Winter Park Shops Expansion Project site (wells reported by Grand Environmental Services, 2008, referred to in the comment) define groundwater level and stream level elevations there. These data further clarify the groundwater-surface water relationships described in the DEIS downstream of Denver Water diversion points. For

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		the latter part of this comment, these data also better define the width of the zone along the stream bank in which recharge may occur during the high runoff period, which would be useful in assessing the Moffat Project effect of reducing the seasonal high flow on stream temperature. The FEIS includes additional analyses of stream flow changes in all of the potentially affected stream segments and tributaries to clarify the effects of the Moffat Project and other RFFAs. Additional groundwater data collected in the Fall 2010 was provided and described to further clarify the groundwater-surface water relationships downstream of Denver Water diversion points. The additional stream flow analyses were used with the new groundwater data to further assess the Project effects on groundwater, stream flow, wetlands, and wells along the Fraser River in FEIS Sections 4.6.4, 4.6.8, 5.4, and 5.8. ***Comment #836-67*** *(ID 4705)**:*** *Fugitive Dust. Water quality impacts due to fugitive dust are ignored. The DEIS fails to recognize the potential for increased fugitive dust from reduced summer levels for Dillon Reservoir, or for Williams Fork Reservoir. For instance, one of the largest contributors of phosphorus loading to Dillon Reservoir is associated with precipitation because precipitation carries phosphorus bound to fine particulate matter into the reservoir. The DEIS indicates the end of September Dillon reservoir elevation would be reduced by 3 feet on average; with a maximum monthly reduction of 16 feet (DEIS, page 4-28). Increased shoreline exposure will result in an increase in fugitive dust. Increased fugitive dust would result in increased phosphorus loading through precipitation as the concentration of particulates in the air increases. Total phosphorus loading is regulated under the Dillon Reservoir Control Regulation (5 CCR 1002-71). Figures 1 and 2 (attached) show how the reduction in reservoir*

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		level translates into increased exposed surface area with the potential for dust generation. This impact was seen in 2002 during the drought when there was a significant increase in shoreline exposure. The DEIS does recognize that the Eagles Nest Wilderness Area is managed under the Clean Air Act as a Class I area suitable for the most stringent level of protection (page 3-262). Dillon Reservoir literally abuts Eagles Nest Wilderness Area and so an increase in fugitive dust associated with reduced reservoir levels in the summer poses a threat to air quality that is not considered. **Response #836-67:** CDPHE is required to protect Class I areas, and in its Air Quality Control Commission Report to the Public 2008-2009 (CDPHE 2008), this issue is addressed as follows: "We [i.e., CDPHE] are also working to develop and adopt plans to reduce air pollutant emissions that obscure visibility in our National Parks and Wilderness Areas and have adopted several measures to improve visibility under the requirements of the Federal regional haze program. Emission reductions from major sources of sulfur dioxide and oxides of nitrogen will be considered next year to help achieve this goal. Impaired visibility is a regional air quality issue that will require emission reductions from numerous sources across broad regions of the country. We are working within the State as well as with other western States to reach this objective." For stationary sources, the CAA provides for protection of Class I areas through the New Source Review preconstruction permitting programs (CAA Section160-173). The air quality permit requirements and pollutant control measures that the Project would need to comply with are addressed in FEIS Section 5.13.7.

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		As shown in FEIS Appendix H, Dillon Reservoir would be approximately one foot higher to three feet lower, on average, as a result of the Project (based on a comparison against Full Use of the Existing System). However, the No Action Alternative would lower Dillon Reservoir up to seven feet compared to Full Use of the Existing System. Dillon Reservoir would be approximately 4 to 11 feet lower, on average, with the Project compared to Current Conditions (2006). The change in water levels would be greater compared to Current Conditions (2006) due to the effects of other RFFAs in combination with the proposed Project. ***Comment #836-66*** *(ID 4704)**:*** *Full Use (2016) Future Baseline Precludes Accurate Assessment of Impacts Arbitrary use of 2016 "future" baseline precludes accurate assessment of water quality impacts. The DEIS's conclusions regarding the magnitude of impacts of the Moffat Project on stream temperatures due to operation of the Project are not based on a comparison of changes from existing conditions. Rather, they are based on changes between Full Use (2016) conditions and Moffat Project (2030) conditions. As such, the DEIS entirely disregards water quality deterioration that will occur between existing conditions and 2016, after Denver Water has increased its diversions and the Windy Gap Firming Project comes on line. This problem is compounded by the fact that the DEIS's analysis artificially front-loads the magnitude of flow depletions in the 2006 to 2016 period, masking the significance of impacts that will actually occur during the artificially selected period of 2016 to 2030. Importantly, the DEIS selective use of baselines understates the impacts of the Project. On the one hand, the DEIS selects a Full Use (2016) baseline to assess estimated flow reductions associated with the Project that will result in increased stream temperature impacts. Because the majority of depletions are presumed to occur before Full Use (2016), most of the impacts are assumed to have*

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		occurred by that time and the true impacts of the Project appear to be minimized. On the other hand, to evaluate water quality impacts of the project, the DEIS adopts as baseline existing water quality, including stream temperature, rather than projected water quality in 2016. Because existing temperature conditions are better than they will be in 2016, after the proposed additional diversions by Denver Water and the Windy Gap Firming Project comes on line, the Project's impacts are, once again, artificially minimized. The DEIS selective use of baselines is unjustified and reflects a bias in favor of a finding of no impacts. Even if most impacts on stream temperatures were to occur between Existing (2006) and Full Use (2016) conditions, operation of the Project is likely to increase the frequency with which flow conditions persist, leading to increased stream temperature problems. For example, the DEIS concludes that the Project will have no impacts on stream temperatures in St. Louis Creek because the daily maximum stream temperature standard is currently exceeded when flows are at 13 cubic feet per second, and flows after 2016 will not drop below 13 cubic feet per second more often than they would in 2016. (DEIS, page 4-41). However, even if flows do not drop below 13 cubic feet per second, an increase in frequency of lower flows due to operation of the Project can lead to violations of chronic maximum weekly average temperature standards. There are readily available stream temperature models that could provide a patina of analysis instead of limiting temperature evaluations to qualitative discussions. One example is the Stream Segment Temperature Model used in the Windy Gap Firming Process DEIS. **Response #836-66:** Please refer to the reorganized format of the FEIS, which provides for more detailed discussion of Project-related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable

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		projects) that are anticipated to occur between Current Conditions (2006) and Full Use with a Project (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use with a Project (2032). A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). ***Comment #836-2*** *(ID 4703)**:*** *Forecasts The surface water hydrology analysis makes water quality predictions unreliable. The DEIS water quality impacts analysis relies on projected depletions derived from the surface water hydrology impacts analysis. As discussed in Section II.A. [SEE ATTACHMENT, JOINT REBUTTAL REPORT], the hydrology analysis is wrong. In particular, the DEIS does not evaluate impacts to water quality during dry years because the assumption is made that the Moffat Project will not divert during dry years. (DEIS, pages 4-41 and 4-42). Yet, as discussed in Section II.A., the Moffat Project will likely increase the frequency and duration of dry year conditions.* **Response #836-2:** Additional information was added to FEIS Chapters 4 and 5 on the increased frequency and duration of dry year conditions and the associated effects on resources. Additional water quality analysis with respect to nutrients was performed for the Fraser River and the Three Lakes area and additional analysis of impacts on temperature was performed for the Fraser River and the Colorado River. See FEIS Sections 4.6.3 and 5.3.

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		Comment #836-60 *(ID 4702)**:*** *Environmental Consequences The Fraser River and tributaries and the Colorado River below Windy Gap are already experiencing significant water quality issues due to ongoing depletions that take the majority of their native flows. Degraded water quality, in particular, elevated stream temperatures, low dissolved oxygen and higher metals and TDS can have significant adverse effects on macroinvertebrates and fish. Grand Lake has also been significantly compromised. The Moffat Project is likely to exacerbate these problems and cause additional water quality impacts.* **Response #836-60:** Additional water quality analysis, including temperature, was performed for the Fraser River. Additional water quality analysis was performed for the Three Lakes areas. Please refer to FEIS Sections 4.6.2 and 5.2. Additional analysis on aquatic biological resources in the Fraser Basin was conducted. Please refer to FEIS Section 5.11. ***Comment #836-65*** *(ID 4701)**:*** *The DEIS does not properly identify impacts to waste water treatment plants. a. DEIS Conclusion The DEIS generally concludes that operation of the Moffat Project may result in negligible impacts to wastewater treatment providers and their discharge permits. The DEIS also indicates negligible influence of wastewater on the Fraser (DEIS, page 4-45) and no impact to wastewater treatment plant discharge permits (DEIS, page 4-51) in the Fraser River. In the Blue River watershed the DEIS predicts no change to Blue River (DEIS, page 4-84) or Dillon Reservoir (DEIS, page 4-83) water quality. Negligible to minor impacts to wastewater treatment plants (DEIS, page 4-84) and discharge permits (DEIS, page 4-85) are identified, although there is mention of more stringent permit limits for ammonia that may result*

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		(DEIS, page 4-83). b. DEIS Conclusion Errors The DEIS conclusions are based on a flawed evaluation of anticipated changes in surface water hydrology, rely on inaccurate data and arbitrary "screening" criteria that precludes assessment of significant impacts, and arrives at conclusions regarding the significance of impacts that are entirely arbitrary. **Response #836-65:** Additional analysis was performed for the Fraser River, flows in the Blue River that may impact the joint sewer authority (JSA), and review of discharge permits for those WWTPs that discharge into Dillon Reservoir. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #836-62*** *(ID 4700)**:*** *Screening Criteria Screening criteria artificially exclude wastewater treatment plants. The DEIS considers impacts to wastewater treatment plants only in the following situations (DEIS, page 4-25): • There is a projected change in stream flow such that flows will be less than the current chronic or acute low flow value in the wastewater treatment plan's discharge permit. • Where projected changes in stream flow are greater than 15% and there is an increase in the percent of effluent comprising the stream flow of 15% or more between Full Use of Existing System and an Alternative. These criteria fail to recognize situations that may not be problematic now that do not meet the screening criteria, but will become real problems as a result of additional diversions in the future. In addition there are circumstances that the DEIS fails to even consider in its limited approach, such as mixing zones or regulatory criteria tied to flows that trigger additional costs to utilities. The DEIS fails to consider the permit for the Hot Sulphur Springs wastewater treatment plant.*

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		Response #836-62: The DEIS did not screen out WWTPs. The DEIS (and the FEIS) evaluated all major domestic WWTPs that discharge into the Fraser River, Colorado River (between Windy Gap and Kremmling), and the Blue River below Dillon Dam. The FEIS also evaluates minor domestic WWTPs that discharge into the Fraser River, Colorado River and Blue River below Dillon Dam as well as the treatment plants that discharge just upstream of, or into Dillon Reservoir. Additional water quality analysis for each WWTP has also been performed. Please refer to FEIS Sections 4.6.2 and 5.2. ***Comment #836-59*** *(ID 4699)**:*** *Flow Depletions Flow depletions in the Fraser and Blue Rivers and fluctuations in Dillon Reservoir will impact wastewater treatment plants. The following are examples of those impacts to wastewater treatment plants in the Fraser and Blue Rivers and Dillon Reservoir: • Chronic copper concentrations in the Fraser River exceed water quality standards and will increase with the reduction in dilution flows associated with additional diversions from the Moffat Project. This may result in copper limits in wastewater treatment plant discharge permits. These limits will be based on the diluting capability of the Fraser River at low flow. Treatment processes to remove metals would be a significant expense. • Average flows considered by the DEIS are irrelevant to wastewater treatment plant discharge permits. CDPHE utilizes the statistical l-day in 3-year, or 30-day low flow with 1 in 3-year recurrence interval low flows for calculating permit limits (acute and chronic, respectively). For example, the DEIS identifies average monthly releases from Dillon Reservoir in Appendix H, Table H-3.35. In this table monthly average releases do not go below 50 cubic feet per second and the DEIS text implies that Denver Water does not intend to reduce flows below that 50 cubic feet per second level although they have the ability to do so in some circumstances (DEIS, page 4-81).*

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		Monthly averages may include flows below that value. When releases below Dillon Reservoir drop below 50 cubic feet per second it has the potential for significant impacts to the Silverthorne Joint Sewer Authority's Blue River Wastewater Treatment Plant ("JSA"). The JSA's discharge permit limits are tied by the CDPHE to the 50 cubic feet per second release from Dillon Reservoir and intervening inflows. Any reduction from the 50 cubic feet per second release even for a few days could be a problem, in spite of the fact that the monthly average release is still 50 cubic feet per second. For example, the JSA estimates that a flow of 35 cubic feet per second for three days would result in permit changes mandating approximately $5 million in capital costs for new metals removal processes, plus operation and maintenance costs into perpetuity. The DEIS did not even consider the potential impact of increased metals concentrations on the JSA. • The DEIS screens analysis of impacts to wastewater treatment facilities to those where the proportion of effluent to low flow in the receiving water increases by 15% or more. This approach fails to recognize impacts that result from loss of dilution that does not meet this criterion. For example, EPA Region 8 Guidance for Whole Effluent Toxicity testing (August 1997) mandates additional bio-monitoring in situations where the ratio of effluent to stream flow dilution is greater than 10%. This may be the case for the JSA, Winter Park Water and Sanitation District and the Fraser Sanitation District as a result of reduced flows in the Blue and Fraser Rivers and will require substantial additional costs to these entities. • The only wastewater treatment plans evaluated in the Blue River watershed is the JSA. There are three major municipal discharges into Dillon Reservoir. These facilities could be affected by the increasingly fluctuating reservoir level associated with the Project. Dischargers to Dillon Reservoir must meet permit limits at the edge of their mixing zone. Increasingly fluctuating reservoir levels make the definition of this mixing zone

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		ambiguous. In order stay in compliance with their permit limits dischargers may be required to modify their facilities to utilize the mixing zone, or to upgrade their treatment plants to be capable of treating to a level that complies with permit limits at the end of pipe. For example, the Snake River Sewer Treatment Plant discharges into the Snake River arm of Dillon Reservoir. If this situation were to impact the treatment plant, they have estimated that it would cost $400,000 to $1.5 million to extend their discharge pipe out ½ to 2 miles into the reservoir to chase their mixing zone. Their other alternative would be to construct metals removal facilities with an estimated cost in 2004 of over $14 million in capital improvements plus annual operations and maintenance costs. • Because of the screening approach employed, impacts to Hot Sulphur Springs' wastewater treatment plant were not considered. The Town of Hot Sulphur Springs is already having difficulty meeting their permit requirements during low flow months due to ammonia and Biological Oxygen Demand. The Town uses a lagoon system and they are concern that reduced flows in the Colorado River, combined with increased incoming nutrients and temperatures, will result in additional violations which in the short term will trigger additional monitoring requirements at additional cost, and over the long term require construction of a new wastewater treatment plant. c. Environmental Consequences Project-related water quality impacts may exceed State stream standards and discharge permit mandates. Local wastewater treatment plant dischargers may be required to pay for increased pollutant removal even when the Moffat Project caused of the problem. **Response #836-59:** Additional water quality analysis, including temperature, was performed for the Fraser River. Additional analyses of flows below Dillon Dam with respect to the JSA were performed. Discharge permits for those entities discharging into Dillon

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		Reservoir were reviewed with respect to projected reservoir levels. Please refer to FEIS Sections 4.6.2 and 5.2. The Project would not compromise the operation or effectiveness of the Current Condition of the Hot Sulphur Springs WWTP. ***Comment #836-64*** *(ID 4698)**:*** *STREAM MORPHOLOGY AND FUNCTION* *"Streamflow, which is strongly correlated with many critical physicochemical characteristics of rivers, such as water temperature, channel morphology, and habitat diversity, can be considered a 'master variable' that limits the distribution and abundance of riverine species" (Poff et al., 1997). The five critical components of the natural flow regime are magnitude, frequency, duration, timing and rate of change of streamflow. Human alteration of the natural flow regime changes the pattern of natural hydrologic variation and this disruption alters geomorphic features that constitute habitat for aquatic and riparian species. The DEIS recognizes the importance of accurately predicting changes in channel morphology and function to evaluate the Project's impacts to fish and invertebrates. (DEIS, page 4-307) However, the DEIS's stream morphology and sediment transport analysis is fundamentally flawed. Therefore, its conclusions regarding impacts of the Project on aquatic resources are groundless. 1. The DEIS incorrectly concludes that the Moffat Project will not have an impact on sedimentation. a. DEIS Conclusion Decreases in peak flows due to the Moffat Project will result in decreases in sediment transport capacity along the Fraser River, St. Louis Creek, Ranch Creek, Williams Fork River, Blue River and the Colorado River. However, for the range of flows expected, sediment transport capacity exceeds available sediment supply and, for all but the smallest flows, sediment transport capacity transfer capacity is orders of magnitude greater than available sediment supply. Therefore, only minor amounts of localized sediment deposition are*

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		anticipated. (DEIS, page 4-9) b. DEIS Conclusion Errors The DEIS conclusion is contradicted by empirical data that shows that sediment accumulation is already a problem in the Fraser River, Ranch Creek, and the Colorado River and by modeling that shows that recommended flushing flows will not be met. In addition, the DEIS relies on flawed predictions of peak flow reductions due to the Project and inappropriate sediment transport equations. **Response #836-64:** An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. The presence of sediment at a site, particularly during low flows, does not mean that overall a channel is aggrading. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic data and sensitivity analysis of sediment supply and sediment transport equations. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3.

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		Comment #836-63 *(ID 4697)**:*** *Empirical Data The conclusion that sediment transport capacity is greater than sediment load is not supported by empirical field studies which indicate that sediments are currently accumulating sediment under current hydrologic conditions. (DEIS Table 3.1-19, page 3-72) Table 3.1-19 shows that four of the seven DEIS sediment transport study sites are currently indicating "potential signs of aggradation". Aggradation occurs in areas where the supply of sediment is greater than the amount of material that the system is able to transport. Contrary to the sediment transport study findings, this observation would suggest that the current flow regime is insufficient to transport the existing sediment load. Several of the affected west slope streams, including the Fraser River and Colorado River have sand deposits and organic material on cobbles. Additional depletions under the Full Use (2016) and Moffat Project (2030) scenarios will only exacerbate this problem. With regard to the sediment discussion on the Fraser River, the DEIS concludes that "sediment transport capacity for the Proposed Action remains orders of magnitude greater than sediment supply" (DEIS, page 4-52) and that "the system is sediment-limited and the morphology of the channel is not expected to be impacted by flow reductions" (Page 4-53). This conclusion is contrary to the information presented in Table 3.1-19 of the DEIS, where "potential signs of aggradation" were observed at four of the seven study sites. If sedimentation is already occurring under the existing (2006) flow regime, the problem will likely be exacerbated under a more depleted flow regime (2016 or 2030) with less power to transport sediment. The DEIS draws similar conclusions on the Williams Fork River finding that peak flows will be reduced and that less sediment will be transported but that transport capacity is greater than sediment supply. (DEIS, pages 4-69 to 4-73) Once again, this conclusion is contrary to the information presented previously in Table 3.1-19*

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		where "potential signs of aggradation" were observed at four of the seven study sites and additional depletions will likely exacerbate the existing condition. **Response #836-63:** The presence of sediment at a site, particularly during low flows, does not mean that overall a channel is aggrading. Numerical analyses were supplemented with an evaluation of historic data to better assess channel morphology. Results of the historic analysis are presented in FEIS Section 4.6.3. Predicted changes in channel morphology are presented in FEIS Sections 4.6.3 and 5.3. ***Comment #836-61*** *(ID 4696)**:*** *Flushing Flow Field Studies DEIS ignores field studies showing need for flushing flows. An analysis conducted under Phase 3B of the Grand County Stream Management Plan provides estimates of flushing flows (See Table 11). [SEE SOURCE FILE FOR TABLE 11, FLUSHING FLOW ESTIMATES (2006).] The DEIS fails to analyze with what frequency flushing flows will be attained after the project comes on line. Absent the appropriate analysis in the DEIS, the UPCO Tool was used to estimate changes in the frequency of flushing flows under the Moffat Project. The UPCO Tool was used to calculate the number of years that the upper value of the recommended flushing flow range at the Fraser River at Winter Park location (175 cubic feet per second) will be satisfied under the DEIS preferred alternative. Table 12 compares the frequency of future flushing flows to the actual number of years that the same flow has been met historically. As shown in Table 12, the recommended flushing flow has historically been met in 44% of the years (20 out of 45 years). Based on the UPCO output, the frequency of flushing flows will decrease to 36% of years (16 out of 45 years) under the proposed Moffat Project. Not only does the number of years that satisfy the flushing flow*

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		recommendation decrease under the preferred alternative, but the longest duration between the recommended flushing flows increases from 5 years to 9 years. Increases in duration between flushing flows have the potential to impact aquatic communities adversely. [See TABLE 12: FRASER RIVER AT WINTER PARK YEARS THAT SATISFY THE GRAND COUNTY STREAM MANAGEMENT PLAN ENVIRONMENTAL FLUSHING FLOWS ACTUAL HISTORICAL AND MODELED FUTURE (PROPOSED MOFFAT ALTERNATIVE 1A) in Source File.] **Response #836-61:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action

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		compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments

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		included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #836-58*** *(ID 4695)**:*** *Peak Flow Impacts DEIS does not evaluate the Moffat Project's impacts on peak flows to morphology. As discussed in Section II.A. [ATTACHMENT, JOINT SUBMITTAL REPORT], the DEIS's analysis of surface water hydrology changes anticipated from operation of the Moffat Project is fundamentally flawed. Of particular note is the DEIS's failure to adequately evaluate the Project's impacts on the magnitude, frequency and timing of peak flows, which have a significant effect on stream function, including sediment transport. The DEIS's evaluation of potential impacts on the streams' ability to transport sediment relies on that analysis to draw its conclusions regarding the Project's impacts on sediment transport. As a result, those conclusions are unfounded. The DEIS does not include any detailed sediment transport modeling for*

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		the Blue River which would allow comparison to the expected impacts of the Moffat Project. Instead, the DEIS purports to rely on information developed as part of the Two Forks EIS in 1988. Such outdated information and qualitative analysis are insufficient to conclude that there will be no notable impacts to channel morphology. **Response #836-58:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years,

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		however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3.

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		Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #836-57*** *(ID 4694)**:*** *Sediment Supply Equations The sediment supply equations are wrong. Sediment supply equations used in the DEIS were developed in 1986 (24 years ago) for the South Platte River (ERC 2006, p11). The report prepared for the DEIS by Environmental Resource Consultants (ERC, 2006, page 13) recommended that a sensitivity analysis to evaluate their applicability to the west slope streams be performed. However, such sensitivity analysis does not appear to have been performed. The DEIS repeatedly indicates that "data can be extrapolated from a channel where information exists to a*

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		channel where less information is available if they both fall in to the same general classification." (ERC, 2006; DEIS page 3-66). However, there is no indication either from the DEIS's analysis or from empirical data that the sediment supply equation used in the DEIS is appropriately applied in the Fraser and Williams Fork basins. The "variation of the Wolman pebble count method" (DEIS, page 3-68) used to collect surface sediment samples is outdated and superficial. Results from this exercise are repeatedly said to be published in DEIS Appendix E-4 (DEIS, Section 3.1.6), but they are not. A more detailed analysis of these and other deficiencies with the methodology and assumptions used in the DEIS are provided by Professor Brian Bledsoe in his comments on the DEIS. (Bledsoe, 2010) c. Environmental Consequences Peak flows play an important role in cleaning sediments from stream beds. Excess sediment can be detrimental to macroinvertebrates and native and recreational fish and can also provide additional habitat for the intermediate tubifex worm (host for whirling disease). In the absence of high flushing flows, species with life stages that are sensitive to sedimentation, can suffer high mortality rates. **Response #836-57:** Sediment supply equations used in the FEIS were derived from an extensive field sediment sampling program conducted within the impacted watersheds for the Two Forks EIS. Sediment supply equations were based on measured sediment loads and therefore account for subsurface materials that are transported at higher flow rates. Additional information on sediment supply equation derivation is provided in FEIS Section 4.6.3. Methods used to collect field sediment samples are appropriate. Results of the sediment sampling are provided in FEIS Appendix E. Additional assessments including sensitivity analysis of sediment supply and sediment transport

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		equations were completed, including additional sediment data collected by the USFS. Results are provided in FEIS Sections 4.6.3 and 5.3. ***Comment #836-56*** *(ID 4693)**:*** *The DEIS incorrectly evaluates impacts of reduced peak flows due to the Moffat Project on stream morphology. a. DEIS conclusion: The DEIS concludes that peak flow frequency would generally reduce high flow periods and therefore reduce flooding hazard. (DEIS, page 4-21). b. DEIS Conclusion Errors: The DEIS fails to analyze the negative impacts of the significant reduction of high flow periods on aspects of stream morphology other than floodplains. c. Environmental Consequences: The predicted reduction in the frequency of peak flows will reduce the number of years when flushing flows will be available, which, as described in Section C.1., above, maintain the integrity of the stream channel.* **Response #836-56:** High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in

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		the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Section 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. Denver Water's diversions from the Fraser River would continue to be subject to bypass requirements pursuant to the right-of-way agreements with the USFS. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. Appropriate conceptual mitigation for any predicted

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		impacts that could occur in the streams is included in FEIS Section 5.11.7 and Appendix M. The analyses of stream morphology, specifically the anticipated response of the streams to projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of Phase 2 sediment transport. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. The effect of peak flow reductions on trout was evaluated in the DEIS and is discussed in more detail in FEIS Sections 3.11, 4.6.11, and 5.11. An analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #836-55*** *(ID 4692)**:*** *AQUATIC LIFE Aquatic life in water bodies that would be affected by the Moffat Project are already showing signs of impacts and degradation due to current operation of transmountain diversions projects. Additional depletions resulting from operations of the Moffat Project could significantly exacerbate these conditions. 1. The Moffat Project will have significant adverse effects on aquatic life. a. DEIS Conclusion The DEIS acknowledges that*

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		operation of the Moffat Project will cause and contribute to exceedences of stream temperature standards (DEIS, pages 4-40 to 4-42) and will dry up streams more frequently and for longer periods (DEIS, pages 4-319). However, it concludes that operation of the Project will result, at most, in "negligible" to "minor" impacts to aquatic resources in various streams in the Fraser and Williams Fork basin and no impacts in the Blue River and Colorado River. (DEIS, pages 4-316 - 4-325). b. DEIS Conclusion Errors The DEIS conclusions are unexplained, unjustified and unsupported. **Response #836-55:** Please see the responses to Comment IDs 4686 and 4690. FEIS Sections 4.6.11 and 5.11 has been revised to discuss the impacts to aquatic resources in these streams in more detail. The Corps has considered that past water-related actions, such as impoundments and diversions, have affected the Colorado River basin and are accounted for in the analysis of Current Conditions. The DEIS catalogues a list of past projects in Section 5.2. These projects were included in the PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in the DEIS Chapter 3 Affected Environment, specifically Section 3.1 Hydrology. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photo

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		documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows in the Fraser and Williams Fork river basins diverted by Denver Water. This will allow the reader to compare the percentage of natural flows with past diversions at each of Denver Water's diversion locations modeled in PACSM under Current Conditions, Full Use of the Existing System, and for each of the Moffat Project alternatives. ***Comment #836-54*** *(ID 4691)**:*** *Drying up a Stream has significant adverse effects on aquatic life. For most of the tributaries of the Fraser River basin and the Williams Fork River basin which are currently dried up by the original Moffat Project diversions, the DEIS concludes that impacts to fisheries and macroinvertebrate communities will be "minor" even though the Project will prolong dry up conditions. Examples include tributaries of St. Louis Creek , King Creek , Elk Creek and tributaries, Little Vasquez Creek , Jim Creek , Middle Fork and South Fork of Ranch Creek , North Fork of Ranch Creek , and tributaries of Williams Fork (McQueary, Jones Bobtail and Steelman creeks) (DEIS, pages 4-319 to 4-324). For almost all of these streams, the DEIS identifies the presence of trout and/or macroinvertebrates at least downstream of the diversions structure. However, Poff (2010) notes that field data from the Fraser River (McCarthy 2008) and in broader surveys (Albano, 2006) indicate that below diversion structures without by-pass flows reductions in species richness and abundance is dramatic. This impact is reduced where there is some year around flows because organisms from undiverted, upstream reaches are able to move into the diverted reaches. Fish and aquatic macroinvertebrates need water. Without water, impacts to fish and aquatic macroinvertebrates can never be "minor."*

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		Response #836-54: The DEIS and FEIS both evaluated the impacts of increased diversions on aquatic resources. FEIS Section 3.11 has been revised to more fully characterize existing conditions in the diverted tributaries. In many diverted tributaries, there was a finding of adverse impact on aquatic resources for some of the reasons noted in this comment. The FEIS includes revised discussions of the status of invertebrate populations in Sections 3.11, 4.6.11 and 5.11. The revised discussion includes many of the benthic invertebrate population metrics listed in this comment. Additional invertebrate community metrics, including Ephemeroptera, Plecoptera, and Trichoptera (EPT) species and changes in community composition were considered and added where appropriate. ***Comment #836-50*** *(ID 4690)**:*** *Causing or contributing to the violation of acute (lethal) stream temperature standards has a significant adverse effect on aquatic life. The DEIS acknowledges that operation of the Moffat Project will result in incremental exceedences of State daily maximum stream temperature standards in Ranch Creek (DEIS, page 4-40), and the mainstem of the Fraser River (DEIS, pages 4-41 and 4-42). The State's daily maximum standards represent the maximum stream temperatures considered to be safe for fish. Exceedences of those standards are presumed to be lethal to fish. Nevertheless, elevation of stream temperatures to levels that are lethal to fish is defined in the DEIS as causing a "moderate" impact to aquatic resources. 2. The DEIS fails to evaluate critical information necessary to assess the viability of aquatic resources. a. DEIS Conclusion The DEIS concludes that operation of the Project will result, at most, in "negligible" to "minor" impacts to aquatic resources in various streams in the Fraser and Williams Fork basin and no impacts in the Blue River and Colorado River.*

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		(DEIS, pages 4-316 - 4-325). In some cases, the DEIS concludes that additional depletions will have a beneficial impact on some streams. (E.g., DEIS, page 4-316). As a result, the DEIS offers minimal if any mitigation to protect aquatic resources. b. DEIS Conclusion Errors The DEIS's conclusions regarding impacts of the Moffat Project on aquatic resources is based on erroneous assumptions, inaccurate and incomplete data and analysis, and flawed methodology. **Response #836-50:** FEIS Sections 3.11, 4.6.11, and 5.11 has been updated to include revised discussions of these issues including low flows and water temperatures in summer. However, exceedances of the temperature standards are not presumed to be lethal. As discussed in the FEIS, the standards are regulatory standards and are not lethal thresholds. ***Comment #836-49*** *(ID 4689)**:*** *Aquatic Resources at the Tipping Point The DEIS states that "knowing whether a resource is healthy, declining, near collapse, or not functioning is necessary for determining the significance of any added impacts due to the Moffat Project" (DEIS, page 5-3). Yet, the DEIS does not evaluate or make a determination regarding the current health of the resource, electing instead to assume that the resource is currently healthy, not in decline or near collapse and functioning. This assumption is contradicted by available data and studies. A recent report by aquatic researchers and biologists at the Colorado Division of Wildlife (DOW) concludes that "the overall abundance and distribution of the stonefly Pteronarcys californica and the mottled sculpin (Cottus bairdi) have changed downstream of Windy Gap Dam post dam construction", that "the abundance of both species is greatly reduced compared to pre-impoundment data" and that "increased future water diversions may exacerbate these trends" (Nehering, 2010). In its comments*

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		regarding the Windy Gap Firming Project, the DOW points to significant declines in trout populations as follow: "In 1981, the trout population in the Kemp-Breeze State Wildlife area near Parshall included 89 trout per acre longer than 14 inches. In 2007, the estimate for the same reach of river was 21 trout per acre longer than 14 inches. This data supports the popular notion among the angling public that the quality of fishing on this reach of river has steadily declined since the construction of the Windy Gap project." (DOW 2009). Proliferation of harmful aquatic species such as didymo and whirling disease-producing tubifex worms, are documented problems in many of the affected streams. (DEIS, pages 3-214 and 4-313 to 4-314) High stream temperatures have led to the listing of portions of the Fraser River, Ranch Creek and Colorado River in the State's Clean Water Act 303(d) list of impaired water due to impacts to aquatic life. Empirical evidence shows that sedimentation is a problem in the Fraser River. (Wesche, 2009) These are signs of an already deteriorated system, not of a healthy one. Hydrological changes can have significant impacts on the river's aquatic resources. Flows affect the availability of habitat, water quality, and water temperature of the stream. They also affect the stream's ability to serve functions that play a critical role in supporting a healthy aquatic ecosystem, such as channel creation and maintenance and cleansing of sediments lodged in spawning beds. The hydrology of the Fraser and Williams Fork basins, and of the upper Colorado River has been dramatically changed by existing transmountain diversions. The Moffat DEIS discloses that average annual flows at the Fraser River at Winter Park gage have been reduced from 32,080 acre feet per year prior to 1935 when Moffat first came on line to just 12,890 acre feet since 1935; a reduction in flow of 60 percent. The DEIS also discloses that "Denver Water diverted approximately 50% of the average annual native flow available at the Fraser River at Winter Park gage for the 30-year period from 1975

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		through 2004. (DEIS, page 3-21) The DEIS also discloses that native average annual lows at the Colorado River at Windy Gap have been reduced by 62% by Moffat, C-BT, and Windy Gap Projects from the period from 1985 through 2004. Flows at the Colorado River at Hot Sulphur Springs gage have been reduced from 528,730 acre feet per year prior to 1935 to just 229,030 acre feet per year (a 57% reduction) from 1936 through 1994 after Moffat, C-BT and Windy Gap began diverting in 1936, 1950, and 1985, respectively. (DEIS, page 3-38). These dramatic reductions to the natural hydrograph and stream system are depicted in figures presented in Section III. Further, incremental reductions in flows and alterations to the existing hydrograph, as a result of the Moffat Project and other reasonably foreseeable depletions, will reduce the resiliency of the system and place the system at much higher risk of threshold (non-linear) changes to the aquatic community. Threshold changes are those changes in a stream's hydrology beyond which the system may exhibit dramatic changes, including loss of its fisheries. (Schaffer and Carpenter, 2003; Groffman, et.al., 2006) The DEIS acknowledges the potential for these threshold responses, but indicates that "threshold effects or a risk analysis approach to impact analysis were not used" because "thresholds are difficult to identify and would require abundant data collection and analyses . . . that is beyond the scope of the EIS." (DEIS, page 4-311). Given the dramatic alterations of the natural hydrograph of affected streams and the documented signs of ongoing deterioration of their aquatic resources, the DEIS's failure to include such analysis within its scope is unconscionable. Its failure to conduct such risk analysis renders the DEIS fatally flawed. **Response #836-49:** The Corps is not aware of a known scientific threshold or "tipping point" at which negative impacts occur to aquatic species nor is the Corps aware of any model or technique available that conducts

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		"threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. However, FEIS Sections 3.11, 4.6.11, and 5.11 have been revised to identify existing conditions in streams that are clearly past the tipping point. The FEIS has also been revised to use professional judgment to evaluate if the Project impacts would cause other streams to reach the tipping point. This evaluation includes new and updated information concerning invasive species, additional water quality analyses including temperature analyses, and channel morphology. Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefers cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of the Fraser River indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11. The CPW report (Nehring 2010) was released after the DEIS was completed. The Corps is aware of the Nehring report and is has been included in FEIS Section 5.11.

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		Comment #836-53 *(ID 4688)**:*** *Dry Year Impacts. Impacts to aquatic life exposed to more dry year conditions were not evaluated. The DEIS aquatics impacts analysis focuses on average and wet year conditions, as those conditions are defined in the PACSM Model. The DEIS states that "Typically additional diversions would be greatest in wet years following dry year sequences". (DEIS, page 4-5) This trend would create more frequent back-to-back dry years and therefore, more frequent stress to aquatic species. For instance, the impacts of the 2002 drought continued to be felt in 2003 and subsequent years because of the 2002 reservoir draw-downs. Dry-year conditions can have significant impacts on aquatic resources, particularly when they occur in consecutive years. They can create particularly harmful bottle-necks for aquatic life; especially in late summer and early fall as stream flows decline to critical levels. Low stream flows cause reductions in available aquatic habitat as more of the stream channel becomes desiccated and the remaining aquatic habitat becomes marginal as velocities and depths are reduced. In addition, stream temperatures fluctuate more rapidly at low flows thereby increasing the probability of exceeding both daily maximum and weekly average temperature standards. Many of the Fraser River tributaries are completely dewatered by the original Moffat Project and the Colorado River below Windy Gap already experiences low stream flows and high water temperatures during most dry and some average water years. The Moffat Project has the potential to significantly exacerbate these existing problems by prolonging low flow periods in average years, increasing the frequency of dry year conditions and effectively creating prolonged drought conditions. Yet, as discussed in Section II.A., the DEIS does not ask whether or how often these dry-year and extended drought conditions will occur as a result of operation of the Moffat Project, or what impacts such conditions will have on aquatic resources. The DEIS PACSM study period runs from*

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		1947 through 1991 and does not include the 2002/2003 conditions. In doing so, the DEIS not only ignores one of the most severe droughts on record, it completely disregards the role of Moffat Project and other reasonably foreseeable projects in extending the duration of drought conditions and the impacts this would have on the Fraser and Colorado Rivers' aquatic resources. **Response #836-53:** The model period used in the DEIS from 1947 through 1991 provides a broad range of average, wet, and dry flow conditions for evaluating hydrologic impacts. A separate assessment of the 2002-2003 period was completed by Denver Water (to determine whether inclusion of an extreme drought year would change conclusions regarding hydrologic effects due to the Moffat Project. Results of that assessment indicated that in drought years like 2002, Denver Water would not divert additional water due to the proposed Moffat Project because Denver Water would already divert the maximum amount physically and legally available under their existing water rights without additional storage in their system. An example of this can be found in how Denver Water operated its water collection system in 2003 and 2004. After the drought of 2002, Denver Water's reservoirs were at 42% of capacity, but all of the water available for diversion in the Fraser River basin could not be diverted by Denver Water due to channel constraints on South Boulder Creek and other hydrologic limitations in Denver Water's Collection System. These constraints would not be changed by the Proposed Project. Denver Water's analysis also concluded that for Denver Water's system, the mid-1950's drought is a more severe drought period than the recent drought. Extension of the modeling period would not substantially change the range of hydrologic conditions or the predicted impacts to flows as a result of the proposed Moffat Project.

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		Additional discussion on the pattern of wet and dry years with the Project is included in FEIS Sections 4.6.1 and 5.1. This discussion has been incorporated into the evaluation of impacts in the Aquatic Biological Resources in FEIS Sections 4.6.11 and 5.11. ***Comment #836-52*** *(ID 4687)**:*** *Macroinvertebrates, Other Fish Species, and Whirling Disease Impacts to macroinvertebrates not evaluated. The DEIS states that benthic invertebrate communities were evaluated based on available hydrology, morphology and water quality information and that no habitat simulations were conducted. (DEIS, page 4-313) It concludes that "as long as flushing flows are adequate to maintain substrate composition, invertebrates would have more favorable habitat availability with reductions in peak flows". This conclusion is entirely subjective and arbitrary. No scientific literature is cited for the proposition. Empirical evidence indicates that some stream segments are already experiencing aggradation/accumulation of fine sediments and water quality degradation under current flow regimes. Accumulation of fine sediment and degradation of invertebrate habitat can only be expected to worsen as peak flows are reduced. Changes in available habitat and stream temperature are not the only mechanisms by which fish can be impacted. Trout can be impacted if changes in flow lead to a collapse of important food resources like the stonefly, Pteronarcys californica. As previously stated, a recent report by the Colorado Division of Wildlife (2010) concludes that Pteronarcys californica have been significantly reduced and in some cases eliminated since 1980. The DEIS fails to adequately evaluate these impacts or explain why these obvious changes in macroinvertebrate populations have been ignored. Impacts to other fish species not evaluated. The DEIS fails to evaluate impacts to fish species other than trout. It states that two native species of sculpin*

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		are present within Moffat System Project Area. (DEIS Table 3.9-1 at p. 3-211) In addition, non-native dace, chub darter, and sucker can also be found in these study areas. The DEIS fails to evaluate impacts of the project on these other native and non-native fish species. Changes in habitat availability and stream temperature are not the only mechanisms by which fish can be impacted. Trout can be impacted if changes in flow lead to a collapse of important food resources like the sculpin, Cottus bairdi. As previously stated, a recent report by the Colorado Division of Wildlife (2010) concludes that mottled sculpin populations have been significantly reduced since 1980. The DEIS fails to adequately evaluate these impacts or explain why these obvious changes in native fish species populations have been ignored. Impacts on whirling disease not evaluated. The DEIS fails to evaluate impacts of the Moffat Project and other reasonably foreseeable projects on whirling disease and, consequently, on the Colorado River, west slope reservoirs, and east slope streams and reservoirs fisheries. The DEIS lists two aquatic nuisance species; whirling disease and didymo, (DEIS, page 3-214), and acknowledges that conditions that result in increased sedimentation may provide additional habitat for the intermediate tubifex worm host for whirling disease. (DEIS, page 4-313). However, relying on a flawed sediment impacts analysis, the DEIS concludes that there would be no increase in habitat for the Tubifex worm. As a result, no further analysis is conducted to evaluate the potential impacts of the Moffat Project on the perseverance of whirling disease and, therefore, on the survival of trout populations in the Fraser River, its tributaries, the Colorado River and in east slope reservoirs and streams. **Response #836-52:** Many of these comments refer to the Colorado River. The DEIS did not evaluate the Colorado River in depth because the flow changes would be much less than 10% on an annual basis and impacts to

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		the resources listed in this comment were unlikely. However, the FEIS has been modified to include the Colorado River as a focus reach with expanded discussion of existing conditions and impacts evaluation in Sections 3.11, 4.6.11, and 5.11. The assumption in the DEIS that substrate in high gradient streams, such as the streams in the Project area, is more suitable for macroinvertebrates with effective flushing flows is reasonable and was retained in the FEIS. The assumption that lower peak flows can benefit macroinvertebrates is also reasonable and has been supported with literature citations in FEIS Section 4.6.11. The CPW report (Nehring 2010) was released after the DEIS was completed. The Corps is aware of the Nehring report and relevant discussions have been included in FEIS Section 5.11. Habitat for sculpins is not typically modeled in EIS documents for Colorado projects. Habitat modeling with PHABSIM focused on the recreationally and economically important species (e.g., trout) which has been typically done with other EIS documents in Colorado and is reasonable for the purposes of the Moffat Project EIS. Many of the other non-native species listed in this comment occur only sporadically and only in limited sections of the Project area and evaluation is not warranted. Whirling disease was discussed in the DEIS. An expanded discussion of whirling disease is included in FEIS Sections 3.11, 4.6.11, and 5.11. ***Comment #836-48*** *(ID 4686)**:*** *Predictive Tool The DEIS's conclusions about aquatic resources rely on incorrect predictions about surface water hydrology, channel morphology and function, and water quality. The DEIS's aquatic resources impacts analysis relies on the use of Instream Flow Incremental Methodology (IFIM) to*

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		assess fish habitat availability. (DEIS, page 4-308). Recognizing the important role that changes in channel morphology, sedimentation, water quality and riparian vegetation play in sustaining aquatic resources, the DEIS indicates that "differences in these aspects of the aquatic environment were incorporated using professional judgment of the suitability of the stream to support aquatic life." (DEIS, page 4-307) Accordingly, to the extent the DEIS's analysis and conclusions regarding these flow related factors are flawed, the DEIS's conclusions regarding impacts to aquatic resources are not supported. Moreover, both the IFIM methodology and the analysis of Project impacts to channel morphology, sedimentation, water quality and riparian vegetation rely on the DEIS's prediction of changes in surface water hydrology due to operation of the Project. As a result, to the extent such analysis and predictions are flawed, they provide no support for the DEIS's aquatic resources impacts analysis and the DEIS's conclusions in this regard are unjustified. Flawed surface water hydrology analysis. For the reasons discussed in Section II.A., the DEIS's surface water hydrology analysis and predictions of stream flow changes due the Moffat Project are fundamentally flawed. These flaws permeate every aspect of the DEIS's analysis and conclusions regarding impacts to aquatic resources, including: - Predictions of flow reductions during dry, average and wet years; - Analysis of the Project's potential for completely drying up streams or extending periods in which Denver Water diversions currently dry up streams; - Analysis of potential for increasing low flow periods; - Analysis of potential for decreasing peak flows. The DEIS's aquatic resources impacts analysis and conclusions depend on a sound surface hydrology impacts analysis and accurate predictions of stream flow changes. The DEIS analysis and predictions in this regard are fundamentally flawed. As a result, the DEIS impacts analysis of aquatic resources is flawed and its conclusions unjustified. Flawed water quality

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		analysis. Changes in water quality can have a profound impact on fish and macroinvertebrates. Of particular concern are elevated stream temperatures, which are already a significant problem in many of the affected streams. In some cases, stream temperature has been identified by the State of Colorado as the cause of impairment to the streams' fish and microinvertebrates. Other parameters, such as metals, can be lethal to aquatic life in very small amounts. The DEIS's conclusion that the Project will have "negligible" to "minor" impacts on aquatic resources relies heavily on the water quality impacts analysis performed. As discussed in Section II.B., the DEIS water quality impacts analysis is fundamentally flawed and its conclusions unjustified. In fact there is no analysis of whether increases in temperature will exceed water quality standards protective of aquatic life although tools like the Stream Segment Temperature Model available to make this kind of determination. As a result, the DEIS conclusions with respect to impact of the Project on aquatic resources are unjustified. Flawed channel morphology and sediment transport analysis. The DEIS conclusion that the Project will have "negligible" to "minor" impacts relies heavily on the DEIS conclusion that reduction of peak flows will not result in increased sedimentation of affected streams. For all streams evaluated, the DEIS concludes that "flushing flows would be sufficient" or that "there would be no changes in sediment accumulation" and therefore, reductions of peak flows would not result in impacts to aquatic resources. (DEIS, pages 4-315+). As discussed in Part C, the sediment impacts analysis is fundamentally flawed and contrary to available empirical evidence. As a result, the DEIS's conclusion that reduction of peak flows will not have a negative impact on the aquatic resources is unjustified. **Response #836-48:** Please see the response to Comment ID 4683.

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		As described below, the FEIS has been revised to include additional analyses for hydrology, geomorphology, and water quality sections. The results of these additional analyses are incorporated into the aquatic resources sections of the FEIS (Sections 3.11, 4.6.11, and 5.11) and the evaluation of impacts for the Project. Additional information was added to FEIS Chapters 4 and 5 on the increased frequency and duration of dry year conditions and the associated effects on resources. Additional water quality analysis with respect to nutrients was performed for the Fraser River and the Three Lakes area and additional analysis of impacts on temperature was performed for the Fraser River and the Colorado River. See FEIS Sections 4.6 and 5.2. The analyses of stream morphology, specifically the anticipated response of the streams to Projected flows changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites (including a detailed sampling and sediment modeling site on the Blue River), review of historic photos, sensitivity analysis of sediment supply and sediment transport equations and an assessment of transport capacity by substrate particle size. Additional detailed sediment sampling and modeling along with assessment of stream segments below diversion points were conducted. Analyses of the existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. An IHA analysis was completed to quantify changes to the magnitude and frequency of larger flood events. The duration between flooding events was

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		computed to identify changes anticipated as a result of the Proposed Action. This information supplements sediment transport and effective discharge analysis that were performed to quantify the ability of the streams to transport their sediment load. This information in included in FEIS Sections 4.6.3 and 5.3. ***Comment #836-47*** *(ID 4685)**:*** *Screening Criteria, Assumptions, Data and Methodology Arbitrary screening criteria. The DEIS does not evaluate impacts to aquatic resources between Existing Conditions (2006) and Full Use (2016). Rather, it elects to restrict its evaluation to the period between Full Use (2016) and the Moffat Project (2030). (DEIS, page 4-315). The DEIS briefly "discloses" potential impacts between 2006 and 2016 for some streams in the Fraser River basin and for the Blue River, and reaches conclusions that are unexplained and unsupported. (DEIS, page 4-113). The Williams Fork basin streams are not evaluated at all. This arbitrary approach renders the DEIS analysis and conclusions regarding the cumulative impacts of the Project on aquatic resources essentially meaningless. As such, the DEIS fails to evaluate the conditions of the fisheries under Existing Conditions, assess their status between Existing Conditions (2006) and Full Use (2016), or accurately evaluate the impacts the proposed 60,000 acre feet of additional depletions projected to occur between Existing Conditions and Full Use. For example, McCarthy (2008) demonstrated that benthic species encompassing about 43 kilometers of stream length below 18 diversion structures in the Fraser River watershed are impaired, as measured by rheophile species populations recovering to within one standard deviation of above diversion reference conditions. Flawed methodology and insufficient data. The DEIS aquatic resources impacts analysis relies on tools that are insufficient to predict aquatic impacts and on subjective professional judgment. The DEIS uses the IFIM to*

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		evaluate impacts to trout habitat for some streams, but admits that within the Fraser and Williams Fork basins, "IFIM data were not available for most of these tributaries." (DEIS, page 4-309) The DEIS indicates that R-2-Cross data were available for a few of these tributaries and "no hydrologic data were available for most of these tributaries". (DEIS, page 4-309) The DEIS goes on to state that on streams where "R-2-Cross information existed, potential impacts were analyzed for the tributaries using professional judgment" (DEIS, page 4-309). Lastly, the DEIS admits to the use of "professional judgment" to evaluate changes to water quality, channel morphology, and riparian vegetation (DEIS, page 4-307). Quoting from one of the peer-reviewed, scientific papers cited in the DEIS itself, "As a predictive tool for ecological management, the IFIM modeling approach has been criticized both in terms of the statistical validity of its physical habitat characterizations and the limited realism of its biological assumptions" (Poff et al. 1997). The R-2-Cross methodology is significantly less rigorous and less accepted by the scientific community than IFIM. R-2-Cross is not even a measure of available habitat but rather the limitation for fish passage. Professional judgment is subjective and should not be used to make important decisions regarding the long term health of the aquatic environment. The lack of available scientific data should not provide the basis for moving the Moffat Project forward. This deficiency is compounded by the fact that the DEIS lacks sufficient data to make conclusions regarding impacts to aquatic resources. DEIS Table 3.9-6 indicates that the majority of streams do not have any fish data collected above Denver's diversion structures and almost half do not have fish data collected below Denver's diversion structures. (DEIS, page 3-224). Insufficient data should not be the basis for moving the Moffat Project forward. The use of IFIM, R-2-Cross, and professional judgment to evaluate impacts to fish habitat, water quality, channel morphology and riparian vegetation are

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		insufficient to make a conclusive determination that the aquatic environments of these river basins will not be significantly degraded by the Moffat Project. Insufficient data should not be the basis for allowing the Project to move forward without terms and conditions designed to avoid, minimize or mitigate its impacts to aquatic resources. **Response #836-47:** Please refer to the reorganized format of the FEIS, which provides a revised baseline for more detailed discussion of Project related effects. FEIS Chapter 4 now describes the total environmental effects (the Project in combination with other reasonably foreseeable projects) that are anticipated to occur between Current Conditions (2006) and Full Use of the System with a Project Alternative (2032). FEIS Chapter 5 describes Project-related effects between Full Use of the Existing System and Full Use of the System with a Project Alternative (2032). The discussions of the existing conditions, changes in hydrology and impacts to biological resources in the diverted tributaries have been expanded in FEIS Sections 3.11, 4.6.11, and 5.11. This included additional sampling in Fraser River tributary streams in 2010 upstream of diversions. The use of PHABSIM for impact evaluation in EIS's has a long history in Colorado and is appropriate for use with the Moffat Project EIS. PHABSIM, including much of the same information used in the DEIS and FEIS, is also an important tool used in the Grand County Stream Management Plan. R-2-Cross information has been used as appropriate in the discussions in the FEIS in light of the limitations of this technique. ***Comment #836-51*** *(ID 4684)**:*** *Erroneous Assumptions. The DEIS improperly concludes that large flows are harmful to fish and fish habitat and, in a number of cases, concludes that the Moffat Project depletions will actually be beneficial to fish and macroinvertebrates. The DEIS mischaracterizes a paper written by Poff et al. (1997)*

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		to support the idea that extremes in flow and habitat conditions act as a "bottleneck to limit population size". (DEIS, page 4-311). In fact, the Poff paper cited in the DEIS, is titled "The Natural Flow Regime: A paradigm for river conservation and restoration". The primary focus of this paper is on the value of a natural flow regime, something the Moffat Project will further impact. The DEIS's assumption is particularly troublesome because over-bank, habitat-producing flows were historically available to the river but were dramatically reduced by operation of the original Moffat Project. The Poff paper cited in the DEIS does not support the DEIS claim that extreme flows are habitat bottlenecks for fish. Rather, high flows are necessary to flush sediments from gravels and maintain a healthy ecosystem. Poff (2010) states that "while very high flows may indeed reduce recruitment of trout fry, healthy populations of trout (i.e., those with lots of good habitat and ample food resources and a stable age distribution) are able to maintain robust populations even in the face of occasional large spring runoff events…" Modeling results from IFIM that predict minimal amounts of fish habitat at high and low flows and improved habitat conditions as a result of stream flow depletions associated with the Moffat Expansion should be ignored. A second invalid assumption used in the DEIS is that winter habitat is more limiting to fish populations than depleted flows associated with the Moffat Project. The DEIS admits that the IFIM analysis was based on only warm season habitat use criteria and it goes on to acknowledge that trout use different habitats between the summer and winter months. (DEIS, page 4-308) The DEIS indicates that "In winter, trout tend to use deeper habitat with slower velocity and slightly larger substrate and may be more oriented to cover". Based on this, the DEIS concludes that "warm-season habitat use criteria likely overestimate the habitat actually used by trout in the winter". This conclusion is incorrect. In fact, the use of warm season curves would likely underestimate the

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		amount of habitat available in the winter months. Trout tend to use low velocity habitats during the winter months, therefore the use of warm season criteria (that indicate a preference for faster velocities) in IFIM modeling would result in reduced amounts of preferred habitat as stream flows, and instream velocities, are reduced in the winter months. Using warm season habitat use criteria to simulate winter habitat availability creates an erroneous modeling result and an incorrect conclusion regarding habitat availability. The DEIS conclusion that streams are limited by low habitat availability during the winter months is unfounded since the DEIS relies on the flawed assumption that warm season habitat use criteria overestimates the amount of available habitat in winter. **Response #836-51:** The citation of Poff's work in the aquatic resources section of the DEIS is appropriately attributed in the context of available, short-term habitat for aquatic populations, especially fish and macroinvertebrates This is also consistent with applications of PHABSIM and with observations of fish and invertebrate dynamics in streams that members of the Corps team have followed for decades. This discussion has been slightly modified in the FEIS to help clarify this issue. The discussion does not contradict the channel dynamics context of Poff's work, and the need for flows that maintain the channel. However, high flows can simultaneously have detrimental effects to populations while having beneficial effects to the channel. Channel maintenance, flushing flows, and sediment deposition are discussed in the FEIS Sections 3.3 and 5.4 and were taken into account and incorporated into the biological discussions and impact evaluation in both the DEIS (see page 4-307) and FEIS Section 4.6.11. The suggestion that PHABSIM information should be ignored is inappropriate. The use of PHABSIM for science-based impact evaluation in EIS's has a long

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		history in Colorado and is appropriate for use with the Moffat Project EIS. PHABSIM, including much of the same information used in the DEIS and FEIS, is also an important tool used in the Grand County Stream Management Plan. The discussion of winter habitat modeling in this comment does not warrant changing the position in the FEIS. One of the criticisms of using PHABSIM is that modeled habitat may not always reflect actual habitat use by fish. Although trout may actually use somewhat higher velocity habitat in warmer seasons and lower velocity habitat in winter, the suitability curves used in PHABSIM for the DEIS and FEIS and winter preference curves both indicate similar use of low velocity habitat in both seasons. The DEIS and the FEIS both discuss this issue and the use of winter curves in PHABSIM likely would not change model output appreciably. Therefore, the original assumption in the DEIS is correct. ***Comment #836-46*** *(ID 4683)**:*** *Environmental Consequences There is a direct correlation between further compromised stream conditions and aquatic life; • Additional diversions of the magnitude caused by the Project will reduce available habitat for fish • The increase in streams drying up completely or for more extensive periods during diversion activity is lethal to fish and microinvertebrates since these species cannot survive without water. • Extending periods of low flow may result in increased water quality, sedimentation, and invasive species problems. • Decreasing peak flows can impact channel morphology, and sediment transport, conditions that play a significant role in supporting fisheries and macroinvertebrates.* **Response #836-46:** Additional evaluations of sediment transport and accumulation including flows required to mobilize multiple particle sizes were conducted and results

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		were provided in Section 5.3 of the FEIS. High spring flows would still occur with the Moffat Project on-line. Appendix H-4 includes average daily hydrographs for average and wet conditions at key locations throughout the study area. While streamflows would be reduced in average and wet years with a Moffat Project alternative on-line, high flows would still occur during runoff. For example, at the Fraser River near Winter Park gage, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 190 cfs versus 177 cfs under the Proposed Action, which is a reduction of 13 cfs or 7%. At the Fraser River below the confluence with Crooked Creek, which is downstream of all Denver Water's diversions in the Fraser River basin, the average daily peak flow in a wet year under Full Use of the Existing System would be approximately 1,243 cfs versus 1,152 cfs under the Proposed Action. The daily peak flow in an average wet year would be reduced by 91 cfs or 7% at that location. There would be little change in the timing of the peak flow in an average wet year at those locations. At the Winter Park gage, the peak flow in an average wet year under Full Use of the Existing System and the Proposed Action would occur at the same time in late June. Below the confluence with Crooked Creek, the peak flow in an average wet year would be delayed about one week from June 13 to June 21 under the Proposed Action compared to Full Use of the Existing System. The reduction in the peak flow in an average wet year would generally be greatest in the Fraser and Williams Fork river basins due to Denver Water's additional diversions in average and wet years, however, the figures in Appendix H-4 and the additional analyses described below demonstrate that high flows would still occur during runoff with the Moffat Project on-line. Additional information on high flows was added to Sections 4.1 and 5.1 in the FEIS. Information was included on the change in timing and magnitude of

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		peak flows for an average year and wet year for several locations throughout the Fraser and Williams Fork river basins. The locations selected include tributaries with and without bypass requirements. In addition, The Nature Conservancy's software, IHA was used to evaluate the change in frequency, duration, magnitude, and timing of high flow pulses, small floods (2-year flood) and large floods (10-year flood) at the same locations. IHA is a tool for calculating the characteristics of altered hydrologic regimes. FEIS Section 5.11 evaluated the impacts of changes to sediment transport, minimum flows, and flushing flows on aquatic resources in the Project area. In many diverted tributaries, there was a finding of adverse impact for some of the reasons noted in this comment. ***Comment #836-45*** *(ID 4682)**:*** *RECREATION Gradually, since 1940, tourism has grown to become the primary economic driver in both Grand and Summit Counties. Unlike other more urban environments, every tourist activity in Grand and Summit Counties relies directly on water. Recreation is the primary reason why visitors come to these counties. The DEIS focus only on fishing and boating and excludes consideration of a wide variety of other summer recreation activities impacted by water. In the few cases where baseline conditions are quantified, the DEIS provides dismissive, judgmental conclusions such as "not necessarily adversely 'effect'" without analytical rigor. In many instances, the DEIS does not provide baseline information about the recreation activity under discussion; reaching impact conclusions in these circumstances is not supportable.* **Response #836-45:** The DEIS analysis addresses the potential impacts on recreation as a result of the Proposed Action, focusing on activities that are water dependent.

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		Activities such as hiking and mountain biking, which are not water dependent, are not expected to be directly affected. Impacts to the scenery of the area, which may be a component of the recreation experience, were addressed in DEIS Section 4.15. ***Comment #836-44*** *(ID 4681)**:*** *The DEIS concludes that there are no fishing impacts in Grand County. a. DEIS Conclusions The DEIS does not contain any information about the relationship between stream flow, stream temperature, water quality, water clarity and the quality of the fishing experience on the Blue, Fraser, Williams Fork or Colorado rivers. It concludes there are no negative impacts. "Generally, no negative impacts to fishing would occur, although possibly some improvements to the quality of fishing." (DEIS, page ES-35) [See TABLE 13. SUMMARY OF FISHING IMPACTS IN GRAND COUNTY in Source File.] The DEIS concludes there are no negative impacts to fishing in an average year in 2016 compared with 2006. "Flow reductions would not necessarily adversely 'effect' the quality of the fishing experience." (DEIS, page 4-374) It also concludes there is "no impact" when comparing the Proposed Action with 2016 for an average year. Since the DEIS concludes there are no impacts to the quality of fishing, the DEIS reports no socioeconomic effects. Elsewhere, the DEIS states that between 2006 and 2016, the Fraser River above Crooked Creek would experience a 2% to 18% reduction in stream flows in the summer months (DEIS, Page 4-406) during an average year and an additional 30% to 40% reduction in stream flows between 2016 and 2030. (DEIS, page 4-406) The DEIS contains a related mark that reducing flushing flows may be beneficial to fishing because the fish will remain more active. "Flow reductions during periods of high flows are not likely to adversely 'effect' the quality of the fishing experience. In some cases, flow reductions during periods of high flow may actually provide a minor*

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		beneficial 'affect' to the quality of fishing." (DEIS, page 4-374) **Response #836-44:** Please see the response to Comment ID 4735. ***Comment #836-43*** *(ID 4680)**:*** *Williams Fork River The DEIS provides no information or analysis about the quality of the fishing experience in the Colorado River between 2006 and 2016. It concludes there is "no impact" associated with the Proposed Action relative to 2016 conditions and no related socioeconomic impacts (DEIS, page 4-431) "No impacts are expected to occur to the quality of the fishing experience along the Williams Fork River as a result of the Proposed Action." (DEIS, page 4-374) In an average year, on the Williams Fork River near the Steelman gage, the DEIS reports anticipated stream flow reductions of 24% (50 to 38 cubic feet per second) between 2006 and 2016 (DEIS, page 4-406) and an additional 30% reduction (9 to 6 cubic feet per second) between 2016 and all Project alternatives. (DEIS, page 4-407)* **Response #836-43:** Please see the response to Comment ID 4735. ***Comment #836-1*** *(ID 4679)**:*** *Colorado River The DEIS provides no information or analysis about the quality of the fishing experience in the Colorado River between 2006 and 2016. It concludes there is "no impact" associated with the Proposed Action relative to 2016 conditions and no related socioeconomic impacts (DEIS, page 4-431) "No impacts to fishing on the Colorado River are anticipated." (DEIS, page 4-377) In an average year on the Colorado River at Hot Sulphur Springs, the DEIS reports anticipated stream flow reductions of 30% between 2006 and 2016 (DEIS, page 4-405) and an additional 15% reduction between 2016 and the Proposed Action. (DEIS, page 4-406)*

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		Response #836-1: Please see the response to Comment ID 4735. ***Comment #836-42*** *(ID 4678)**:*** *Blue River The DEIS provides no information or analysis about the quality of the fishing experience in the Blue River between 2006 and 2016. It concludes there is "no impact" associated with the Proposed Action relative to 2016 conditions and presumably no related socioeconomic impacts because socioeconomic impacts on Summit County are not included in the DEIS. "No impacts are expected to occur to the quality of the fishing experience along the Blue River as a result of the Proposed Action." (DEIS, page 4-437). In an average year, on the Blue River, the DEIS reports anticipated stream flow reductions of 22% between 2006 and 2016 and an additional 4% reduction after 2016 due to the Proposed Action. (DEIS, page 4-86)* **Response #836-42:** Please see the response to Comment ID 4735. The average year flow reductions in the Blue River noted in the comment would not have an impact on fishing and therefore would not result in socioeconomic impacts to Summit County. FEIS Chapter 4 addresses total environmental effects; the impacts that would occur between Current Conditions (2006) and Full Use with a Project (2032). FEIS Section 4.6.11 indicates that impacts to aquatic biological resources in the Blue River, including macroinvertebrates and fish, would be negligible to minor under the Full Use with a Project (2032) scenario. Additionally, FEIS Section 4.6.15 states that no impacts are expected to occur to the quality of the fishing experience along the Blue River between Current Conditions (2006) and Full Use with a Project (2032) under any alternative. Given these conclusions, no change in the levels of fishing activity or angler spending patterns would be expected. Therefore, no socioeconomic impacts

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		would be anticipated in Summit County due to changes in fishing activity. ***Comment #836-41*** *(ID 4677)**:*** *DEIS Conclusion Errors The DEIS contains no remarks about the relationship between water hydrology, water quality and water temperature to fishing so any conclusion is unsubstantiated, at a minimum. The Grand County Stream Management Plan provides extensive technical research regarding the relationships between water hydrology, quality and temperature and environmental flow and recreational flow regimes. DEIS conclusions about the quality of fishing between 2006 and 2016 in the Fraser and Blue rivers are unsubstantiated. There are no remarks about the quality of fishing between 2006 and 2016 for the Williams Fork and Colorado Rivers. The DEIS provides no basis upon which to reach its "no impact" conclusions about fishing. Interviews of experienced local anglers conducted as part of the Grand County Stream Management Plan, fishing guides and fly fishing retailers indicate that water temperature already curtails fishing on some days and during some times of the day. It is reasonable to anticipate that additional stream flow reductions plus related water temperature increases attributable to the Moffat Project will further threaten the health of fish. The Grand County Stream Management Report suggests that that flushing flows are important to a healthy riparian environment and have a beneficial impact on the quality of fishing. (TetraTech, 2008; Coley/Forrest, 2007a)* **Response #836-41:** Please see the response to Comment ID 4735. Channel maintenance, flushing flows, and sediment deposition are discussed in FEIS Sections 3.3 and 5.4 and were taken into account and incorporated into the aquatic biological resources discussions and impact evaluations in both the DEIS (see page

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		4-307) and in FEIS Section 4.6.11. ***Comment #836-40*** *(ID 4676)**:*** *Environmental Consequences Further deterioration in the health of fish in the Fraser, Williams Fork, Blue, and Colorado River systems will further diminish the quality of the fishing experience and reduce the number of anglers, who represent an important segment of the summer recreation visitor. In addition to use of the rivers and tributaries by individual anglers, private fishing clubs, and fishing guides, the high-end Elk Trout Lodge relies solely on fishing to attract summer visitors. Others such as Devil's Thumb Ranch feature fly-fishing at a key summer attraction. Reaches of the Colorado and Blue Rivers have received designation as a Gold Medal Water from the Colorado Wildlife Commission. In addition, reaches of the Blue and Colorado Rivers are under consideration for designation as Wild and Scenic Rivers by a council of 4 federal agencies. Reaches of Fraser River, St. Louis Creek and Williams Fork River have received Colorado Merit Water Stream designations from the Colorado Fishing Network. To lose these designations would be a substantial loss to Grand and Summit counties' water-based recreation economy. The DEIS does not address whether these designations would be in jeopardy due to the Project or its cumulative effects.* **Response #836-40:** Please see the response to Comment ID 4735. ***Comment #836-39*** *(ID 4675)**:*** *The DEIS wrongly concludes that there are beneficial impacts to kayaking and rafting in Grand County and negligible impacts to kayaking and rafting in Summit County. a. DEIS Conclusions. The DEIS acknowledges the relationship between stream flow on the Colorado River and Blue River and the suitability for kayaking and rafting. Kayaking: The DEIS states that there is a beneficial impact to*

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		kayaking on the Colorado River between 2006 and 2016 because the number of days in an average year when stream flows are suitable for kayaking would increase from 84.6 to 98.6 days or by 16.5% (Page 4-375). The DEIS also concludes that between 2016 and the Proposed Action, there would be an additional beneficial impact attributable to additional days suitable for kayaking in an average year (98.6 to 101.2, +2.6%). (DEIS, page 4-377) Rafting. The DEIS states that although monthly stream flows drop 3% to 15% (DEIS, page 4-374), days suitable for rafting remain the same between 2006 and 2016. Between 2016 and the Proposed Action, the DEIS describes no changes in flow but reports an increase in the number of days suitable for rafting from 107.6 to 108.4). (DEIS, page 4-376) The DEIS acknowledges that between 2006 and 2016 there will be "long term major impacts to recreational boating" on the Blue River, including both kayaking and rafting flows (DEIS, page 4-378). The DEIS also acknowledges that the Proposed Action would have long term adverse impacts to boating on the Blue River, but labels these impacts as "negligible." (DEIS, page 4-378) **Response #836-39:** Please see the response to Comment ID 4734. The DEIS did not conclude that there would be beneficial impacts, overall, to kayaking and rafting in Grand County. Rather, the DEIS identified a range of impacts, which ranged from minor beneficial to major adverse, depending upon the specific river segment and the basis of comparison (i.e., Current Conditions [2006] versus Full Use of the Existing System or Full Use of the Existing System versus Full Use with a Project [2032]). The same is true of the analysis conducted for Summit County. The analysis of impacts on boating was revised in the FEIS to provide a comparison of Current Conditions (2006) versus Full Use with a Project (2032) as well as Full Use of the Existing System versus Full Use

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		with a Project (2032). Conclusions on the resulting levels of impact have been revised accordingly in the FEIS. ***Comment #836-30*** *(ID 4674)**:*** *DEIS Conclusion Errors There are significant detrimental impacts to kayaking and rafting (recreational boating) when the impact of the Moffat Project and the Windy Gap Firming Projects are included in the analysis. According to work conducted during the Upper Colorado Wild and Scenic Alternative Management Plan negotiations comparing existing conditions to conditions under the Moffat Project preferred alternative, the number of days suitable for recreational boating ("usable days") at the Colorado River near Kremmling will decrease as shown in the table that follows. Table 14 compares the number of usable days during the permit season for commercial boating (April – September) under actual existing conditions (stream gage data from 1983-2006) and under the Moffat preferred alternative (modeled with PACSM from 1947-1991 including full build out on East and West Slopes, Moffat Expansion Project, and Windy Gap Firming Project). The three categories of float boating "experiences" shown in the shaded cells are based upon a survey conducted by American Whitewater in 2008 and reflect flow ranges that are acceptable to private and commercial boaters on the Upper Colorado. Each float boating experience is important for maintaining a viable recreational boating industry in Grand County because they provide opportunities for a wide range of private boaters and commercial customers at varying locations and times during the boating season. The greatest reduction in usable days, as a result of full build out, the Moffat expansion, and the Windy Gap Firming project (compared to existing conditions) occurs in the wettest 50% of years. In the wettest years, the usable days lost fall in the standard and high water experience categories, which are the experiences that commercial and private boaters*

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		seek out during years of high flow. For example, in the wet typical years, approximately 50% of the standard experience usable days will be lost in the future compared to the actual existing conditions. Furthermore, in wet typical years, the majority of the reduction in usable days is experienced during May, June, and July which represent the months during which commercial outfitters often serve the most customers. A loss of boating opportunities for even a few days may represent a significant loss of income for commercial outfitters that have historically relied on streamflows appropriate for a wide customer base. While the total number of lost usable days in the driest 25% of years is less than the total reduction in wetter years, the impact to the boating community will be large because in dry years and during the late season when flows are low, the Upper Colorado River is one of the few boatable locations in Colorado. [See TABLE 14, COMPARISON OF NUMBER OF USABLE DAYS UNDER ACTUAL EXISTING CONDITIONS AND THE MOFFAT PROJECT (PROPOSED ALT. (MODELED FUTURE CONDITIONS) in Source File.] On the Blue River, the Proposed Action will result in decreases in the number of days that fall within the minimum and optimum flow ranges as compared to Full Use (2016). Based on averages over the entire 45-year study period the reduction in usable days for boating is about one day per year. However, the use of averages in this context obscures the fact that in any given month or year, decreases in flows may have a significant impact on the number of usable days. Furthermore, as previously mentioned a loss of boating opportunities for even a few days may represent a significant loss of income for commercial outfitters. The use of averages in the DEIS also obscures the actual impacts to recreation flows on the Blue and Colorado Rivers. For example, although on average the number of days with minimal recreational flows on the Blue River would be expected to increase by 4 days, the number of days with optimum flows

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		would decrease by 1.2 days, and the number of days with maximum flows would decrease by 2 days, in any given year the impacts may be much greater. In 1966, the Moffat Project would have reduced the number of days on the Blue River with minimal recreational flows from 6 to none; and in 1991 the number of days with maximum flows would have declined from 11 to none as compared to Full Use (2016). flows would have declined from 11 to none as compared to Full Use (2016). The DEIS (incorrectly) incorporates stream flow changes due to the proposed Windy Gap Firming Project in the 2016 conditions. According to the Windy Gap Firm Project DEIS, this Project and its cumulative effects trigger streamflow reductions and related reductions in days suitable for kayaking and rafting of up to 43% on reaches of the Colorado River. (WGFP DEIS, 2008, Tables 3-124, 3-126, 3-127, c-128, c-129 and 3-130). **Response #836-30:** Several changes were made in the FEIS to respond to this and other comments received on the DEIS, including elimination of the 5-year average as a basis for comparison. Flow data from individual years are still presented because they provide a good snapshot of conditions that would be expected under actual hydrologic conditions. However, the overall level of change is presented using the period of record rather than the 5-year average. Also, the analysis of impacts on boating has been revised in the FEIS to provide a comparison of Current Conditions (2006) versus Full Use with a Project (2032) as well as Full Use of the Existing System versus Full Use with a Project (2032). Conclusions on the resulting levels of impact have been revised accordingly in the FEIS. Furthermore, the proposed Project would not affect the number of days with optimum flows because the proposed Project would not divert additional water during dry years.

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		Comment #836-29 *(ID 4673)**:*** *Environmental Consequences There is a potential impact on summer visitors if kayaking and rafting is curtailed due to stream flow. This is particularly important to western Grand County where the number of tourist-related options is limited. The Windy Gap Firming Project acknowledged this and offered to curtail its diversion activity during the important Big Gore Days race event on the Colorado River, if streamflow conditions are below a pre-set cubic-feet-per-second level. (WGFP DEIS, 2008, Page 3-290)* **Response #836-29:** FEIS Section 3.15.5.3 has been revised to acknowledge Big Gore Race Days as an important recreational event in Grand County. On average, the proposed Project would decrease flow by 12 cfs during the month of August on the Colorado River at Kremmling. During dry years no additional diversion would occur. ***Comment #836-38*** *(ID 4672)**:*** *LAND USE 1. The DEIS excludes agricultural impacts in Grand and Summit counties. a. DEIS Conclusion The DEIS does not address agricultural impacts in Grand or Summit County at all. It addresses no land use impacts in Grand or Summit County. b. DEIS Conclusion Errors Based on interviews with a sampling of Grand County ranchers and research conducted as part of the Grand County Stream Management Plan, some ranchers who use the river, creek and tributaries in the Fraser Valley upstream from Granby for agricultural purposes report problems with their irrigation ditch operations due to low flows not only during dry years but also during average years. Additional stream flow reductions would further compromise the agricultural irrigation pump intake systems, perhaps to failure in some situations. Significant drops in streamflow and related increases in temperature hamper or prohibit irrigation activity either because there is inadequate*

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		pressure or because dead fish and algae clog the irrigation gate network. Additional Moffat Project diversions will trigger lower stream flows that will exacerbate an already troublesome condition. c. Environmental Consequences Irrigation ditch problems and failures lead to additional costs of repair and can result in poor crop results which impact agricultural revenues. Agriculture is a valued cornerstone of the Grand County economy. **Response #836-38:** Please see the response to Comment ID 4647. ***Comment #836-35*** *(ID 4671)**:*** *The DEIS excludes consideration of the relationship between rivers and tributaries and resort developments. a. DEIS Conclusion The DEIS provides no discussion of land use in its sections on affected environment, environmental consequences or socioeconomic effects. There is no mention of the relationship between the rivers and tributaries and resort developments in Grand County. b. DEIS Conclusion Errors There are resort developments in Grand County that inextricably rely on the Fraser River, the Colorado River and their tributaries. Devil's Thumb Ranch (Fraser), Winter Park Resort (Fraser River), Elk Trout Lodge (Colorado River) and others rely on healthy and visually appealing streamflow to enhance the visitor experience. Elk Trout Lodge uses the Colorado River as its primary summer attraction as it is a fly fishing resort. Intrawest designed its redevelopment of the Winter Park ski area base to focus on the beauty of the Fraser River as it flows through the development. Devil's Thumb promotes its "fly-fishing haven" as a key summer attraction. c. Environmental Consequences As described above, further reductions in streamflow, deterioration in water quality and increases in water temperature may materially hamper the quality of the fishing experience as well as visual and auditory enjoyment of the rivers and tributaries and therefore deter*

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		occupancy or sales activity at these signature resorts in Grand County. **Response #836-35:** Land use in Grand County was addressed in FEIS Section 5.19. DEIS Section 4.17 incorporates the conclusions of several other resources, including recreation, surface water, aquatic biological resources and others. The socioeconomic impacts in Grand County was reviewed and expanded as appropriate for the FEIS based on the conclusions of these other resources in considering effects upon the county's tourism industry and economy. ***Comment #836-37*** *(ID 4670)**:*** *VISUAL RESOURCES 1. The DEIS provides an inadequate and incomplete analysis of the relationship between visual resources and the visitor experience. a. DEIS Conclusions The DEIS states that the Fraser, Williams Fork, Blue and Colorado rivers "occur in scenic or visually sensitive locations. The setting in which the stream is viewed is equally important as the stream flow level when determining visual preferences." (DEIS, page 3-299) The DEIS acknowledges the relationship of the visual experience of rivers in mountain communities dependent on visitation but "concludes" with a dismissive statement that river water levels fluctuate and visitors expect that. "As a result, a stream is a dynamic system that rarely remains static and the viewer has an expectation of observing change over the course of the seasons." (DEIS, page 3-299) There is no further discussion of whether the significant reductions in streamflow from the native condition to existing conditions (2006), from existing to 2016 "baseline" conditions and from 2016 "baseline" conditions to the Proposed Action might affect visitors. There is no follow-through discussion in the socio-economic section. The DEIS concurs that there is an adverse impact on the Fraser from a visual perspective, and states that substantial changes on the Williams Fork, Blue, and Colorado*

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		River are minor, limited, or "below perceptible change." b. DEIS Conclusion Errors The visual resources analysis is confined to perception due to changes in stream flow. There is no mention of water clarity or the related riparian environment in the Fraser, Williams Fork, Blue or Colorado River and their tributaries or water clarity impacts on Grand Lake. The DEIS uses a study in from the Cheoah River in North Carolina to correlate viewer preferences and streamflows. The study concludes that viewers react adversely to both low stream flows and higher streamflow conditions. (DEIS, page 4-404) The DEIS states that low flows occur in the winter and spring months, and since the Moffat project would have minimal impact during periods of low flow, the impact on viewers would be minor. "In general, the Moffat Project would have only a minor effect on flow levels during periods of low flows, when streams are most sensitive to visual change." (DEIS, page 4-404) There is ample information in the DEIS and emphasized elsewhere in this Report, that there are significant stream flow reductions between 2006 and 2016 and additional stream flow reductions between 2016 and 2030 during each summer month, when viewers are enjoying streamflow. The conclusion that viewer impact would be "minor" is not substantiated. Throughout the analysis, the author uses the phrase" within the normal range of seasonal and annual variability" to claim that most observers would not notice. The DEIS states that it would be "difficult for most observers to determine if flow variations are naturally occurring or are attributed to the Moffat Project." (DEIS, page 4-405) These statements are not substantiated. c. Environmental Consequences Further reductions in the visual resources of the Fraser, Williams Fork, Blue and Colorado rivers and tributaries with high visitor visibility or which are significant assets to adjacent visitor activities or real estate uses may decrease visitation to Grand and Summit counties. To both Grand and Summit County, tourism is a "basic sector" industry.

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		Response #836-37: Please see the response to Comment ID 4649. The DEIS analysis examined flows over the course of the full 45 years of record. This same analysis has been repeated in FEIS Section 5.17.1.2, but compares Current Conditions to the Proposed Action using flows over the full 45 years of record. A discussion has also been included in FEIS 3.1 regarding native flow conditions and Current Conditions. The statement that it would be "difficult for most observers to determine if flow variations are naturally occurring or are attributed to the Moffat Project." (DEIS, page 4-405) has been further substantiated in FEIS Section 5.17.1.2. Impacts to the visual aesthetics from impacts to the associated riparian vegetation communities was addressed in Section 4.15.1.2 of the DEIS. DEIS Section 4.1 has been further reviewed and any potential impacts to visual aesthetics due to changes in water clarity have been addressed in FEIS Section 5.17.1.2. Impacts to the economy of the area are addressed in the Draft EIS Section 4.17. ***Comment #836-28*** *(ID 4669)**:*** *CULTURAL RESOURCES a. DEIS Conclusion The DEIS includes no mention of cultural resources in Grand County, provides no reference as to who was contacted in Grand County regarding cultural resources, and lists no team expert with a cultural resource background (DEIS, Chapter 6). b. DEIS Conclusion Error If an investigation had occurred, then the analyst would have discovered that Grand County has a rich and diverse cultural history in the Upper Fraser Valley that is directly linked with the water resources of the Fraser River and its tributaries. (Coley/Forrest, 2007a) c. Environmental*

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		Consequences. There will be negative consequences to the diversity of cultural resources linked to water. **Response #836-28:** Please see the response to Comment ID 4730. ***Comment #836-27*** *(ID 4668)**:*** *CUMULATIVE IMPACTS A. AQUATIC RESOURCES 1. The DEIS fails to evaluate cumulative impacts of past, current and reasonably foreseeable future conditions on aquatic resources. a. DEIS Conclusion "In West Slope streams, all of the reasonably foreseeable water-based actions were included in the Project modeling except for the reduction in the Shoshone Power Plant calls … Slight, infrequent reductions in flow during the spring, when there is usually sufficient water to sustain fish and invertebrates, would likely have no additional cumulative effect on aquatic resources as a result of the Project." (DEIS, page 5-47) b. DEIS Conclusion Errors The DEIS's cumulative impacts analysis does not evaluate the impacts large transmountain diversions, such as Denver Water's original Moffat Tunnel and the Roberts Tunnel, have had on the aquatic resources of the Fraser, Williams Fork, Blue and Upper Colorado river basins. The DEIS acknowledges that transmountain diversions have had a profound impact on the hydrologic regime of the rivers. Yet, it fails to evaluate the impacts these hydrological changes have had on aquatic resources, or the cumulative effects incremental depletions from the proposed Project and other reasonably foreseeable actions will affect those resources. Data to assist in this analysis is available. For example, changes in macroinvertebrate and native fish (sculpin) population and fish biomass are available for the Colorado River. Manmade disturbances to streams resulting from transmountain diversions in the Upper Colorado, Fraser and the Blue Rivers have been significant. The DEIS discloses that average annual*

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		flows in the Fraser River at Winter Park gage have been reduced from 32,080 acre feet per year prior to 1935 when Moffat first came on line to just 12,890 acre feet since 1935; a reduction in flow of 60%. In the Colorado River, the DEIS discloses that native average annual flows at the Colorado River at Windy Gap have been reduced by 62% by Moffat, Colorado-Big Thompson, and Windy Gap Projects from the period from 1985 through 2004. Flows at the Colorado River at Hot Sulphur Springs gage have been reduced from 528,730 acre feet per year prior to 1935 to just 229,030 acre feet per year (a 57% reduction) from 1936 through 1994 after Moffat, C-BT and Windy Gap began diverting in 1936, 1950, and 1985, respectively. (DEIS, page 3-38) Figure 1 illustrates the magnitude of historic impacts to native flows at the Fraser River near the Winter Park gage. Figure 2 illustrates the magnitude of historic impacts to native flows at the Colorado River gage at the Hot Sulphur Springs gage. Figure 3 shows very similar hydrologic depletions for the Blue River near Dillon. In spite of the magnitude of depletions of native flows, the DEIS fails to evaluate the impacts such historic diversions have had on the affected streams, or the effect cumulative, incremental diversions due to the Moffat Project and other reasonable foreseeable projects like WGFP, will have on the streams' resources. [See FIGURE 1, FRASER RIVER NEAR WINTER PARK AVERAGE DAILY STREAMFLOW in Source File.] [See FIGURE 2, COLORADO RIVER AT HOT SULPHUR SPRINGS AVERAGE DAILY STREAMFLOW (1904-2007) in Source File.] [See FIGURE 3, BLUE RIVER BELOW DILLON AVERAGE DAILY STREAMFLOW in Source File.] Moreover, the DEIS evaluates only impacts between some future condition described as Full Use (2016) and the Moffat Project (2030). It does not evaluate impacts between Existing Conditions (2006) and Full Use (2016). As such, the DEIS does not assess the condition of the existing aquatic environment today. It simply assumes that the condition of the aquatic environment will be

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		healthy in 2016, and then it analyzes only the incremental impact of its proposed depletions between 2016 and 2030. If the Fraser, Blue, and Colorado rivers are to avoid a death of 1,000 cuts, future changes must be placed in the broader context of the alterations that have occurred to date and will occur between now and 2016. **Response #836-27:** CEQ interprets NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the action and its alternatives may have a continuing, additive and significant relationship to those effects (CEQ Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005). The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision-making regarding the proposed action. The Corps considered that past water-related actions, such as impoundments and diversions, have affected the rivers and are accounted for in the analysis of Current Conditions (2006). The DEIS catalogues a list of past projects in Section 5.2. These projects were included in PACSM to sufficiently account for and represent past actions. In addition, effects of past actions on existing flows are accounted for and disclosed in DEIS Chapter 3, specifically Section 3.1. To provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions (2006), Full Use of the

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		Existing System and each of the Moffat Project alternatives. The description of aquatic biological resources was also updated in FEIS Section 3.11 to include recent information. The discussions of effects to aquatic biological resources were revised in FEIS Sections 4.6.11 and 5.11 to incorporate the additional hydrologic information. The Corps provided additional information on past actions in FEIS Section 4.2. This was accomplished by qualitatively assessing the environment approximately 200 feet upstream and downstream of representative Denver Water diversions. The upstream conditions were meant to coincide with pre-diversion conditions. A combination of streams with and without bypass flows were evaluated (e.g., St. Louis Creek, Jim Creek, etc.) using historic photograph documentation and aerial photography. Additionally, FEIS Section 3.1.5 was expanded to include a discussion of virgin flows and the percentage of monthly virgin flows in the Fraser and Williams Fork river basins diverted by Denver Water. This allows the reader to compare the percentage of natural flows with past diversions at each of Denver Water's diversion locations modeled in PACSM under Current Conditions (2006), Full Use of the Existing System, and for each of the Moffat Project alternatives. Additional discussion of the affected environment related to water quality, Section 303(d) listings, and discharge permits has also been included in FEIS Section 3.2. FEIS Chapter 4 was revised to present the total environmental effects of the Moffat Project alternatives in combination with other RFFAs. FEIS Section 4.2.1 presents a discussion of the past water-based actions in the streams in the Project area. FEIS Chapter 4 includes a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032) as described below.

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		• Current Conditions (2006) reflects the Denver Water-related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations under the Current Conditions (2006) scenario. Denver Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, Denver Water's average annual demand is 363,000 AF/yr and the Moffat Project would be providing 18,000 AF/yr of new firm yield. Total environmental effects due to future Moffat Project diversions in combination with other RFFAs was based on a comparison with modeled Current Conditions (2006), which reflect Denver Water diversions that are indicative of the current administration of the river, demands, infrastructure, and operations. The affected environment within the study area, which was presented in DEIS Chapter 3, is a function of past and present actions. Each resource analysis considered the impacts of past and present projects and diversions. For example, DEIS Section 3.1 presented streamflow data at various gages through the Project area for the 30-year period from 1975 through 2004. The historical flows at those gages reflect the effects of diversions associated with Denver Water's existing Moffat Collection System and other in-basin water users. To provide more information on the impacts of past and current diversions on stream channels, FEIS Section 3.1 was revised to provide a discussion of natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is

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		estimated to divert under Current Conditions (2006), Full Use of the Existing System and each of the Moffat Project alternatives. The description of aquatic biological resources was also updated in FEIS Section 3.11 to include recent information. The discussions of effects to aquatic resources were revised in Sections 4.6.11 and 5.11 to incorporate the additional hydrologic information. Full Use of the Existing System includes RFFAs including growth in Denver Water's average annual demand to 345,000 AF/yr, which Denver Water can achieve with its existing system. Denver Water's existing system is capable of meeting an average annual demand of 345,000 AF/yr; therefore, the hydrologic effects associated with additional diversions that would occur as Denver Water's demand grows to that level are not an impact of the proposed Moffat Project. Denver Water is not responsible for mitigating for the effects of other RFFAs since they are not caused by the Moffat Project. FEIS Chapter 5 presents the effects attributable to the Moffat Project based on a comparison of Full Use of the Existing System and Full Use with a Project Alternative (2032). ***Comment #836-36*** *(ID 4667)**:*** *Ecologists have long recognized that many ecosystems exhibit nonlinear behavior in response to human perturbations. A continuous change in an independent variable (e.g., a continuous decline in stream flow) may not produce smooth changes in a response variable (e.g., fish productivity). Instead, if a threshold is crossed, the system may flip from one capable of supporting trout to one that cannot. The term "ecological resilience" has been used to describe the amount of disturbance required to propel the ecosystem across a threshold and into an alternative stable state (Holling 1996). Riverine ecosystems are strongly affected by external factors like stream flow, sediment, and temperature (Groffman et al. 2006). The quantity and timing of*

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		stream flow are critical components responsible for maintaining the ecological integrity of river ecosystems (Poff et al., 1997) and stream flow is often considered a "master variable" that limits the distribution and abundance of riverine species (Resh et al. 1988). Because many ecosystems, such as the Fraser, Blue, and Colorado rivers, may exhibit hystereses, the change required to restore the ecosystem may need to be much greater than the change that produced the change in state. The best known examples of this phenomenon are from lakes where continuously adding nutrients has little impact on water clarity before a threshold is crossed and the lake flips from a clear-water state to a cloudy, phytoplankton-dominated state (Scheffer and Carpenter 2003). Restoring these lakes frequently requires not only ending the input of nutrients, but removing much of the nutrients that have accumulated in the lake. Thus, the challenge for managers is to recognize the existence of such a threshold before it is crossed. Not only does the DEIS fail to recognize the potential for these thresholds, but by evaluating cumulative impacts as the change from existing conditions rather than the change from the native state, it fails to acknowledge the likelihood that the historic reductions in flow have already pushed the river close to any existing threshold. **Response #836-36:** For some resources, there is not a known scientific threshold or "tipping point" at which negative impacts occur nor is the Corps aware of specific models or techniques available to conduct "threshold" analyses. The magnitude of impact depends on the current state of that resource and factors that influence that resource. Tipping point issues were addressed for aquatic resources in FEIS Sections 3.11, 4.6.11, and 5.11. The effects of historic reductions in flow are considered in Chapter 3 since the current state of

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		the affected environment is a function of Denver Water's past and present operations and diversions. To provide more information on the impacts of past and current operations on native or natural stream flows, Section 3.1 in the FEIS was revised to provide a discussion of the natural flows in the Fraser and Williams Fork river basins and the percentage of natural flow Denver Water is estimated to divert under Current Conditions, Full Use of the Existing System and each of the Moffat Project alternatives. The impact analysis was also revised in the FEIS to present total environmental effects in Chapter 4 based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs. ***Comment #836-34*** *(ID 4666)**:*** *Environmental Consequences The critical question the DEIS must answer is not how much of a change will the Moffat Project and other future projects will have on the existing conditions of the Fraser, Blue and Colorado rivers, but whether these rivers can withstand further large scale depletions without being pushed into an alternative state, one that cannot support healthy fish populations and other aquatic life. This question is critical to evaluating the impact of future projects and has not been asked. Additional reductions in stream flow quantity and changes in stream flow timing caused by the Project have the potential to fundamentally alter how the Colorado River ecosystem functions. Potential non-linear responses to the continued reduction in stream flow have not been considered in the DEIS, and this is a significant omission.* **Response #836-34:** The Corps is not aware of a known scientific threshold or "tipping point" at which negative impacts occur to resources like water quality or aquatic species nor is the Corps aware of any model or

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		technique available that conducts "threshold" analysis. The magnitude of impact depends on the current state of that resource and factors that influence that resource. For example, aquatic resources respond to minimum flows and other conditions that sustain their habitat and are incrementally affected by temperature and water quality changes. The evaluation of effects on aquatic resources considered the current state of that resource including species composition, relative abundance, benthic macroinvertebrates, and habitat availability and factors that affect that resource such as minimum flows, temperature, and water quality to assess the magnitude of impact. For example, in fully diverted tributaries that do not contain fish and few macroinvertebrates, it is likely that the resource, at least immediately downstream of the diversion, is past the tipping point. In other stream segments, site-specific information was assessed to determine if the Project would create a tipping point effect. This information is included in FEIS Sections 3.11, 4.6.11 and 5.11. ***Comment #836-33*** *(ID 4665)**:*** *RECREATION, LAND USE, VISUAL RESOURCES AND CULTURAL RESOURCES The analysis on recreation, land use, visual resource and cultural resources is inadequate because it lacks rigor and improperly refers the reader to prior DEIS sections where cumulative impacts were explicitly excluded. a. DEIS Conclusions The DEIS includes qualitative information about two projects included in the cumulative effects analysis that affect the West Slope. They are the reduction of Xcel Energy's Shoshone Power Plant Call, and the 10,825 Water Supply Alternatives. (DEIS, Table 5-2, page 5-6) • Recreation. The DEIS states, "The cumulative effects of water-based actions on river segments are incorporated into the direct and indirect impacts discussion in Section 4.13, Recreation." (DEIS, page 5-49) • Visual Resources. "The cumulative effects of water-based actions on visual resources of the*

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		affected river segments are incorporated into the direct and indirect impacts discussion in Section 4.15 Visual Resources." (DEIS, page 5-52) • Land Use, Cultural and Socioeconomics. No information is provided in the DEIS. The DEIS concludes that most of the "non-minor" cumulative effects are in Grand County. These include moderate effects on surface and ground water tributaries, fish resources, and recreational boating. b. DEIS Conclusion Errors The DEIS analysis of cumulative effects is inadequate because it lacks rigor; it provides only qualitative information about the two projects included in the cumulative effects analysis. To review impacts associated with recreation and visual resources, it improperly refers the reader back to the sections where cumulative impacts were explicitly excluded. The methodology is faulty because the Windy Gap Firming Project, a project in the permitting phase with a significant impact on the Colorado River, is presented as part of the 2016 "baseline" condition, not part of the cumulative effects analysis. c. Environmental Consequences The methodological error understates the impact of the Moffat Project in all areas of analysis. **Response #836-33:** Please see the response to Comment ID 4729. It is untrue that the cumulative effects analysis in the EIS provides only qualitative information about two projects. DEIS Section 5.1 states: "Pertinent cumulative effect timeframes and/or hydrologic scenarios were evaluated using PACSM, since the scenarios were previously used for modeling effects analysis and provide the most logical evaluation process. The Full Use with a Project Alternative (2032) scenario was used to bound the identification of potential cumulative effects related to potential stream flow changes. Cumulative effects with reasonably foreseeable projects (Denver Water's demand is 363,000 AF/yr [379,000 AF/yr demand less the 16,000 AF/yr demand met by conservation

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		measures], plus other entities have implemented projects/actions). The potential hydrologic effects of implementing a Moffat Project alternative, with the cumulative effect of other entities' reasonable foreseeable actions, are based on this scenario. PACSM results include the proposed water-related projects that are reasonably foreseeable between Current (2006) Conditions and Full Use of the Existing System (2016 without Project) (refer to Section 5.3). These projects are incorporated into the Full Use of the Existing System scenario. Additional reasonably foreseeable projects that could occur between 2016 and 2032 are addressed qualitatively (refer to Section 5.3)." DEIS Table 5-2 summarizes the reasonably foreseeable future projects, including the WGFP, that are included in PACSM. ***Comment #836-32*** *(ID 4664)**:*** *MOUNTAIN PINE BEETLE INFESTATION 1. The DEIS fails to evaluate acknowledged, potential impacts from the mountain pine beetle infestation. a. DEIS Conclusions The DEIS recognizes that pine beetle infestation and pine beetle killed trees may have implications for the Fraser, Blue and Colorado river watersheds such as forest losses, vegetation community changes, increased wildfire risk, and changes in runoff, sedimentation and erosion. (DEIS, pages 4-19, 5-47). It also acknowledges that "Numerous studies have been conducted on the relationship between climate change and water resources in the west and that "[m]ost climate change models project that temperatures will continue to rise in the West". (DEIS, page 5-34) The DEIS states that there may be both decreased sediment and erosion potential from increased ground cover and increased sediment and erosion potential from forest fires fueled by dead timber. (DEIS, pages 4-19, 5-47) While acknowledging the relationship between pine beetle infestation and impacts on sedimentation, the DEIS concludes that:* *• Sediment transport changes due to a forest fire*

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		would return to equilibrium over time (DEIS, page 4-21); The Moffat Project would decrease sediment transport capacity and the time required to return to equilibrium would be greater but this hypothetical condition was not quantified. (DEIS, page 4-21); Since impacts on sediment supply would occur with or without the Project, they were not evaluated because of its "speculative nature." (DEIS, page 5-47) b. DEIS Conclusion Errors The pine beetle infestation is not "speculative"; Grand and Summit counties are in the midst of widespread an infestation. Documentation, hydrologic models and risk assessment procedures are available that address the relationships between pine beetle infestations and watersheds. (Buffington, et.al.) The DEIS fails to describe potential pine beetle impacts on the existing (2006) and estimated 2016 "baseline" conditions. Further compromised existing conditions can exacerbate the impacts from the Project and the cumulative impacts. The DEIS also fails to estimate the impacts of the Project and the cumulative impacts due to the pine beetle infestation. c. Environmental Consequences Scholarly research has identified and the DEIS has acknowledged potential adverse impacts from the pine beetle infestation and related hazardous wildfire conditions and watersheds including: elevated runoff conditions which can cause both flooding and drying of streambeds; elevated erosion and related increases in sedimentation and nutrient loads, and; reductions in stream temperature. These impacts have adverse consequences on water quality, aquatic life, wastewater treatment permitting. **Response #836-32:** Pine beetle infestation is not speculative, but the effects of it on channel morphology are. Pine beetle infestation alone would not impact channel morphology, however forest lost and vegetation community changes from the beetle could potentially have several impacts. Pine beetle kills could result in decreased sediment supply as dying forests

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		decrease overhead shading resulting in increased groundcover and mid-story vegetation, therefore decreasing erosion potential. Pine beetle could also result in increased sediment supply if a large fire were to occur, fueled by the killed timber increasing erosion potential. In the event of a large scale fire, sediment supply would likely significantly increase for a finite amount of time. Sediment deposition from increased erosion would be expected to occur in streams during this time. As groundcover and the forest regenerates, sediment supply would be reduced and likely return to levels near Current Conditions. As revegetation occurs, sediment supply would decrease and at some point during the revegetation process sediment supply would once again drop below sediment transport capacity. When sediment transport capacity exceeds sediment supply, sediment that had been deposited as a result of the fire would begin to erode and transport downstream. The system would continue along this erosional process until it returned to its equilibrium. The proposed Project would result in decreased sediment transport capacity. Following a major fire it can therefore be predicted that either with or without the Project, the river system would eventually return to the same dynamic state. The duration of time required for the stream to return to equilibrium would likely be greater with the proposed Project. DEIS Section 4.1 under the subheading Sediment Supply explains in a qualitative means how pine beetle could impact the river systems. Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in the FEIS (Section 5.7). In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on

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		more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership will accelerate and expand the USFS' ability to restore forest health in watersheds critical for Denver Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. ***Comment #836-31*** *(ID 4663)**:*** *CLIMATE CHANGE AND GLOBAL WARMING 1. The DEIS fails to evaluate cumulative impacts of climate change and global warming. The DEIS recognizes that "numerous studies have been conducted on the relationship between climate change and water resources in the west and that "most climate change models project that temperatures will continue to rise in the West". (DEIS, page 5-34) a. DEIS Conclusions The DEIS simply states that "climate change and global warming may be considered reasonably foreseeable; but currently there is no accepted scientific method of transforming the general concept of increasing temperature into incremental changes in stream flow or reservoir levels" (DEIS, page 5-35). The DEIS excludes evaluation of impacts due to climate change and global warning on existing conditions, on impacts attributable to the Moffat Project and on cumulative impacts. It is inconsistent that Denver Water uses information about global warming to argue for maintaining its 30,000 acre feet of Strategic Water Reserve which is excluded from the total system supply and therefore contributing to the need of the Moffat Project. (DEIS, page 1-14) b. DEIS Conclusion Errors There are established, scientifically-sound methods to evaluate the potential impacts from climate change. Two*

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		examples that follow illustrate this point. • A recent report prepared by the Western Water Assessment for the Colorado Water Conservation Board concludes that "enough information is available to support adaptation planning for risks associated with climate variability and change." (WWA, 2008) • The Colorado Water Supply Availability Study, in preparation under the direction of the Colorado Water Conservation Board (CWCB), includes data to perform a quantitative analysis of climate change impacts, including much of the data that Denver Water needs. The Study also describes a method to evaluate the effects of climate change and commits to evaluate effects on both the demand side by the Consumptive Use Group and on the supply side in the Supply availability study. Denver Water and several other Front Range water suppliers are currently engaged in a climate adaptation analysis. To evaluate impacts on the rivers and ecosystems comprehensively, both the CRWAS and Denver Water's efforts should be integrated into the DEIS and Denver Water's water supply modeling. In 2009, the Council on Environmental Quality (CEQ) stated the "CEQ sees no basis" for excluding greenhouse gas emissions from the consideration of environmental effects that must be analyzed in the NEPA process. (CEQ, 2009) In early 2010, at the request of both federal agencies and advocacy organizations, the Council on Environmental Quality (CEQ) released a draft guidance memorandum on ways Federal agencies can improve their consideration of the effects greenhouse gas emissions and climate change in their evaluation of proposals under NEPA. (CEQ, 2010) c. Environmental Consequences As stated in the CEQ document, climate change can increase the vulnerability of a resource or ecosystem, causing a proposed action to result in more damaging consequences than prior experience might indicate. Climate change can magnify the damaging strength of certain effects of a proposed action. In the case of the Moffat Project, stream temperature increases,

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		sedimentation aggradation due to climate change and global warming may exacerbate the already fragile condition of aquatic resources and increase Project and cumulative impacts. **Response #836-31:** The DEIS addressed climate change in Section 5.4 and described the impacts of expected yield of the Moffat Collection System related to earlier and more concentrated spring runoff: "Many scientific studies have predicted an increase in temperatures, resulting in changes in the composition of winter precipitation and the timing of spring snowmelt. In other words, as temperatures rise the West could receive more winter precipitation in the form of rain versus snow and the snow that does accumulate would melt earlier in the spring than in past years. In Colorado, the onset of stream flows from melting snow has shifted earlier by two weeks between 1978 and 2004 and the timing of runoff is projected to shift earlier in the spring (Western Water Assessment 2008). If this were to occur, it is likely that the yield of the Moffat Collection System would decrease due to existing capacity constraints. The Moffat Collection System canals and tunnels are only capable of transporting a certain amount of water before reaching hydraulic limitations. Additionally, South Boulder Creek is only capable of transporting approximately 1,200 cfs at Pinecliffe before flooding concerns arise. If runoff were to occur in a condensed timeframe, it is likely that hydrological limitations in the Moffat Collection System could decrease Denver Water's yield. Furthermore, a condensed timeframe for runoff would likely mean a reduction in the number of days Denver Water's water rights is in priority to divert water. This could result in Denver Water building additional replacement sources to ensure an adequate supply of water for its customers." Although there is valid concern in the scientific community that global climate change may affect

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		future water supplies in Colorado, there is little quantitative or even qualitative data with which to accurately predict or portray these changes, and consequently with which to integrate reasonably predictable cumulative effects of the proposed actions. The 2008 Western Water Assessment report prepared for the Colorado Water Conservation Board (CWCB), Climate Change in Colorado, indicates that, “In all parts of Colorado, no consistent long-term trends in annual precipitation have been detected. Variability is high, which makes detection of trends difficult. Climate model projections do not agree whether annual mean precipitation would increase or decrease in Colorado by 2050. The multi-model average projection shows little change in annual mean precipitation.” The 2009 USGS Circular 1331, Climate Change and Water Resources Management: A Federal Perspective, indicates that climate change has the potential to affect many sectors in which water resource managers play an active role, including water availability. The study concedes two pertinent points: 1) the best available scientific evidence based on observations from long-term monitoring networks indicates that climate change is occurring, although the effects differ regionally; and 2) climate change could affect all sectors of water resources management, since it may require changed design and operational assumptions about resource supplies, system demands or performance requirements, and operational constraints. These studies reflect general trends that there is concern regarding the effect of climate change on the proposed actions, however the absence of quantified climate-induced decreases in flows related to the proposed actions makes it impossible to evaluate the changes with more than a speculative quality. Climate change is an evolving science, as such the Corps updated the FEIS (Section 4.4) with more recent technical documentation, including the Colorado River Water Availability Study and the joint Corps-Bureau of

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		Reclamation planning document titled, Addressing Climate Change in Long-Term Water Resources Planning and Management: User Needs for Improving Tools and Information (Brekke 2011). DEIS Section 5.4.2 states: “Denver Water has evaluated climate change scenarios in relation to water supply risks and the Strategic Water Reserve. As previously discussed, climate models show general agreement that temperatures are likely to increase in the West and less agreement about how this change will influence water resources. In a recent journal article (Woodhouse 2007), Denver Water described the scientific information that would be necessary to more adequately assess the impacts of global climate change on the water resources they manage. Their climate data “wish list” includes: • Data on changes of timing and annual volume of stream flow • Watershed scale precipitation change data • A hydrologic model for the Colorado River basin that incorporates climate data in order to more carefully evaluate the effects of various climatic regimes and potential management strategies • A better understanding of how climate change may impact watershed land cover (e.g., vegetation changes, fires, etc.) In summary, changes in snowpack and stream flow timing associated with climate change may affect reservoir operations including flood control and storage. Additionally, changes in the timing and magnitude of runoff may also impact the functioning of diversion and conveyance structures (Western Water Assessment 2008). As stated in the Purpose and Need described in Chapter 1, Denver Water needs improved operational flexibility of the Moffat Collection System, including being able to respond

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		to global climate changes and adjusting operations in response to new scientific information." The concept of systematic interdisciplinary approach to cumulative effects is central to NEPA analysis, but is only defined in very general terms. Accordingly, the NEPA relies on the Federal agencies to establish their own methods and procedures within the framework of the regulatory requirements. Therefore, the Corps as the lead Federal Agency of the Moffat Project EIS believes the analysis is adequate. ***Comment #836-26*** *(ID 4662)**:*** *MITIGATION, MONITORING AND ADAPTIVE MANAGEMENT The DEIS discloses impacts of the project for which no mitigation is proposed. Further, it does not identify certain impacts because it fails to take into account already degraded existing conditions in the Upper Colorado River system. Finally, it incorrectly concludes that there will no impacts because it does not apply appropriate methodology. For the Proposed Project to satisfy 404(b)(1) Guidelines, mitigation of all unavoidable impacts is required. The DEIS proposes limited temperature monitoring and mitigation and Colorado River cutthroat habitat improvements as the only mitigation for impacts on the West Slope. These measures are not sufficient to mitigate the impacts that are likely to be caused by the Moffat Project. In addition to those measures, below is a list of suggested Section 404 permit conditions that would help to address (but may not fully resolve) the DEIS shortfalls and the concerns raised in this report.* **Response #836-26:** FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit

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		conditions, if a permit is issued. ***Comment #836-25*** *(ID 4661)**:*** *ADAPTIVE MANAGEMENT AND MONITORING PLAN Prior to Project construction, Denver Water should develop an Adaptive Management and Monitoring Plan in conjunction with Grand County, Summit County, the Colorado River Conservation District, and other key stakeholders (including Trout Unlimited), and acceptable to CDOW, USACE and EPA. Recognizing the uncertainties associated with impacts of the proposed incremental depletions, the purpose of the Plan is to monitor, evaluate, prevent and address potential environmental impacts of the proposed project in the Fraser, Blue and Colorado River watershed. The Plan will cover the Fraser and Williams Fork Rivers and affected tributaries as well as the Colorado River from the outflow of Windy Gap Reservoir to its confluence with the Blue River, and the Blue River from the Dillon Reservoir to the confluence with the Colorado River. Operation of the Project will not result in unacceptable impacts to aquatic resources and stream health, as reflected by key aquatic life and stream health indicators to be identified in the Adaptive Management Plan. 1. Elements of Adaptive Management and Monitoring Plan The Adaptive Management and Monitoring Plan to include at a minimum: • Identification of key stream segments and groundwater to monitor including, but not limited to, the Fraser River, Ranch Creek, St. Louis Creek, Vasquez Creek, the Colorado River from downstream of its confluence with the Fraser River to its confluence with the Blue River, and the Blue River from Dillon Reservoir to the confluence with the Colorado River. • Baseline of existing hydrologic conditions prior to Project depletions (based on analysis of the hydrologic record at all pertinent stream gages within affected stream reaches), to be developed within 5 years after issuance of the 404 permit or prior to Project diversions, whichever occurs first. • Baseline of existing ecological conditions prior to Project*

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		depletions as reflected by analysis of any existing fishery, aquatic macroinvertebrate and channel geometry data and groundwater data, to be developed within 5 years after issuance of the 404 permit or prior to Project diversions, whichever occurs first. • Development of a baseline water quality, water temperature and sediment loading and transport conditions by stream reach. • Development of a baseline relationship between changes in ecologic conditions and changes in hydrology. • Use baseline ecologic/hydrology change relationship to attempt to predict changes in ecologic conditions. • Establish key indicators of aquatic life and stream health (e.g., fish biomass) and threshold levels that reflect declines in aquatic life and stream health. • Incorporate base flow targets, as developed through the Grand County Streamflow Management Plan. • Using key indicators, biologic monitoring to evaluate changes in fish, aquatic invertebrate, and aquatic plant populations. • Coordinated, comprehensive monitoring of Denver Water's implementation of permit conditions, and mitigation obligations to make sure that measures are effective and to avoid redundant, inconsistent or ineffective environmental commitments. • Permanent stream transects to monitor and evaluate any future changes in ecological conditions associated with changes in channel maintenance and flushing flows associated with Project depletions. • Procedural mechanism through which Denver and key stakeholders identify operational changes or restoration Projects to be implemented to avoid unacceptable impacts to the aquatic environment. Rationale: An Adaptive Management and Monitoring Plan for the Fraser, Blue and Upper Colorado River is appropriate because the impacts of the proposed action cannot be ascertained with scientific certainty. Moreover, there is disagreement among experts about the impacts that will occur. Adaptive Management and Monitoring will provide a means of detecting changes in the aquatic environment, judging whether they are likely caused by operation of the

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		Project, and addressing changes in a systematic manner. **Response #836-25:** Appropriate conceptual mitigation components were incorporated into FEIS Appendix M and, if a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated and required. In addition, Denver Water and other stakeholders would coordinate resources to benefit the environment through the LBD process. ***Comment #836-24*** *(ID 4660)**:*** *MITIGATION AND CONDITIONS FOR PROTECTION OF AQUATIC ENVIRONMENT 1. Dry year diversions. The Moffat Expansion Project will not divert water from the Fraser, Blue and Upper Colorado Rivers in dry years. Rationale: The DEIS asserts that the project will not divert additional water during dry years, (DEIS, 4-5) and the environmental impact assessment is based upon that assumption. Consequently, the impacts of additional diversions in dry years has not been evaluated. This condition is necessary to ensure that the project actually operates as described and evaluated in the DEIS. 2. Diversions limited to May, June and July. Diversions under the Moffat Expansion Project for storage in the enlarged Gross Reservoir will be limited to the months of May, June and July. To ensure this condition is satisfied, there shall be no deliveries of water through the Moffat Tunnel into Gross Reservoir when end of month storage content in Gross Reservoir in all months, except for May, June, and July, is at or above 41,811 af (the existing capacity of Gross Reservoir). Rationale: The DEIS assumes that the Moffat Expansion Project will divert water in the runoff months of May, June, and July into an expanded Gross Reservoir (DEIS, 4-5) and the environmental impact assessment is based on this premise. This condition is necessary to ensure that the project actually operates as described and evaluated in the*

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		DEIS and does not instead, extend diversions into other months because of an additional 72,000 af of storage space. 3. Stream Temperature Conditions. Denver will not divert water from its Moffat System if stream temperatures are (1) at or above acute or chronic State Standards, or (2) will cause or contribute to a violation of State Standards as measured by real life data provided by gages to be installed by Project proponent on the Colorado, St. Louis Creek, Vasquez Creek, Fraser River, Blue River, and Ranch Creek. Curtailment of diversions shall continue until such time as the stream temperature at the gages does not exceed temperature standards. Rationale: This condition is necessary to satisfy Section 230.10 (b)(1) of the 404(b)(1) Guidelines which does not allow a project to be permitted if it causes or contributes to state water quality standards. The DEIS states that there may be additional temperature impacts in these streams. The Colorado River from below Windy Gap to the confluence with the Blue River will be on the 2010 303d list of impaired waters for temperature exceedences. Monitoring is necessary to ensure that additional depletions do not cause violations of State standards which have been established to protect fish. 4. Wastewater Treatment Plant Discharge Permit Flows. Denver will not divert additional water from its Moffat System if Fraser River stream flows drop below the acute and chronic flows in the Winter Park, Granby or Fraser wastewater treatment plant discharge permits and will not divert additional water from Dillon Reservoir or the Blue River if Dillon Reservoir levels or releases drop below the acute and chronic flows in the Snake River, Blue River, Frisco and JSA wastewater treatment plant discharge permits. Rationale: The Moffat DEIS concludes that no impacts to wastewater treatment plants in the Fraser, Snake and Blue Rivers will occur because river flows will not drop below chronic and acute flows in discharge permits. This mitigation element assures that this will be the case. 5. Wastewater Treatment Plant Permit Costs. Denver

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		agrees to pay for new or increased permitting costs for wastewater treatment plants that are tied to percent effluent in the river, such as those associated with increased Whole Effluent Toxicity monitoring or new metals removal unit processes. Rationale: The Moffat DEIS concludes that impacts to the wastewater treatment plants will be negligible because the percent of effluent comprising river flows is not significant. This mitigation element would hold the project to that conclusion so that the wastewater treatment plants do not have to assume the costs of changes to their permits not caused by the wastewater treatment plant. 6. Protection of drinking water supplies. Prior to construction of any project feature, the Denver shall submit to COE, Grand County, Summit County, NWCCOG and CDPHE for approval a water quality monitoring plan for those water quality parameters that affect drinking water supplies (see Colorado Basic Standards and Methodologies for Surface Waters, 5 CCR 1002-31). Once the monitoring plan is approved, Denver will comply with said plan. If monitoring indicates that the project is causing elevations of these parameters, then diversions from the Moffat System shall cease and a corrective action plan shall be submitted to and approved by the COE, Grand County, Summit County, NWCCOG and CDPHE. Rationale: Water quality degradation could lead to water treatment problems for communities downstream of Moffat Collection System. Small communities cannot afford increased water treatment costs. The Moffat Project will divert mostly clean water from the Fraser, Williams Fork and Blue Rivers, which would impact downstream potable drinking water supplies for Grand County Water and Sanitation District, Winter Park Water and Sanitation District, Summit County including the Towns of Frisco, Dillon, and Silverthorne, Towns of Winter Park, Fraser, Tabernash, Granby, Hot Sulphur Springs, Parshall and Kremmling 7. Fugitive Dust Control. Denver will develop a fugitive dust control plan to address dust from the increasingly

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		exposed shoreline area on Williams Fork and Dillon Reservoirs. Rationale: The Moffat DEIS recognizes that surface water elevation will be reduced. This increases the potential for increased air and water pollution from fugitive dust where more shore line will be exposed. 8. Flushing Flows. As part of the Adaptive Management process, Denver will provide periodic flushing flows based on updated sediment transport models to protect species with life stages that are sensitive to sedimentation. Rationale: The conclusion that sediment transport capacity is greater than sediment load is not supported by empirical field studies which indicate that sediments are currently accumulating under current hydrologic conditions. DEIS Table 3.1-19 on p. 3-72. Table 3.1-19 shows that four of the seven DEIS sediment transport study sites are currently indicating "potential signs of aggradation". Aggradation occurs in areas where the supply of sediment is greater than the amount of material that the system is able to transport. Contrary to the sediment transport study findings, this observation would suggest that the current flow regime is insufficient to transport the existing sediment load. Additional depletions under the Full Use (2016) and Full Use w/Project (2030) scenarios will only exacerbate this problem. An updated sediment transport model is necessary to determine conditions in affected streams. 9. Aquatic Environment 2016 Baseline. Denver will establish an aquatic environment baseline at 2016 to evaluate conditions that will exist at the time the Project is developed. Rationale: The DEIS assumes that the condition of the aquatic environment in 2016 will be the same as it is today when it evaluates the impacts of the proposed action, even though the 2016 hydrology is based on a significant increase in stream depletions over today's conditions, i.e. "full use of Denver's existing system." 10. Supplemental Analysis. Prior to construction, Denver Water shall demonstrate to the satisfaction of the COE that the major assumptions used by Denver Water in PACSM to model diversions and stream flows for

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		Full Use of Existing System and the Proposed Action are still reasonable and valid. If conditions and assumptions have significantly changed, then supplemental analyses will be required. Rationale: The DEIS uses Denver Water's PACSM which contains major assumptions related to future diversions, streams flows, and hydrologic conditions. If those assumptions change significantly, it will call into question the validity of environmental impacts predicted in the DEIS. 11. Reuse. In order to minimize the amount of water removed from the Fraser, Williams Fork and Blue Rivers and their tributaries, Denver Water shall, to the maximum extent practicable, reuse or make successive use of its native and foreign reusable water supplies. The maximum extent practicable shall be defined as the reuse and successive use of 80% of the reusable return flows. The 80% target includes water that is reused or successively used to extinction. To ensure compliance with this condition, Denver Water shall prepare and submit to the COE, Grand and Summit Counties, and EPA an annual report summarizing its total water supplies, total return flows and the amount of reusable water supplies and provide accounting showing the total amount of water that was reused or successively used by Denver Water and its treated and raw water customers. Failure to make a reuse or successive use of 80% of the water diverted over a cumulative ten year rolling average shall result in an equivalent reduction in diversions from the Fraser, Williams Fork, and Blue river basins in the following cumulative ten year period. Rationale: Maximizing the current and future water supplies Denver Water and its customers will both minimize the amount of water removed from Western Colorado and minimize the adverse effects to the aquatic ecosystem. (80% is a feasible, achievable reuse/successive use figure based on other front range cities. See the City of Lafayette's reuse plans. (Windy Gap DEIS p. 1-27) This permit condition is necessary to satisfy the requirements of: Section 230.11 which requires permitees to take

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		steps to "minimize potential adverse effects" to the aquatic ecosystem; Section 320.4 (a)(1) which requires an evaluation of the impact on the public interest and a balancing of the benefits of the projects (water supply for the participants) against the detriments (impacts to the Colorado River system); Section 320.4(m) requiring implementation of water conserving measures; and Colorado law concerning the reuse of transmountain water in order to lessen the amount of water diverted from the western slope. ("In order to minimize the amount of water removed from Western Colorado eastern slope importers should, to the maximum extent feasible, reuse and make successive use of the foreign water." Denver v. Fulton Irrigating Ditch Company, 506 P.2d 145, 148 (Colo. 1972) (emphasis added) 12. Conservation and Drought Response Plans. Prior to construction of any project feature, Denver Water shall require as a condition of service delivery that all of its treated and raw water customers shall prepare and implement: 1) a supply-side water conservation plan that shall include among other things a goal of less than 8% system loss that will include leakage in water pipes, pipe breaks, pipe flushing and unaccounted-for water in the raw and treated water distribution systems; 2) a demand side water conservation plan, that shall include among other things a goal of a system-wide average per capita use of 120 gpcd or less; and 3) a drought response plan that has goals of reducing demands based on droughts in ranges of 10%, 25%, 50%, and up to 66%, which will include a prohibition on outdoor watering except to save tree canopies. The plans shall be submitted to the COE, Denver Water, NWCCOG and Grand and Summit Counties which shall review these plans and makes recommendations for implementation. If any customer fails to prepare or implement these plans, Denver Water shall reduce the amount of water diverted from the Fraser, Williams Fork and Blue Rivers by an amount equivalent to the amount that would be provided to such Denver Water customer.

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		Rationale: The DEIS notes that water conservation includes both supply-side and demand-side management. If the Moffat Project is to be permitted as the least damaging environmental alternative, (Section 230.210(a)) then conservation measures need to be included in the permit to correspond with the projected needs of the Denver Water customers and the statements in the DEIS concerning conservation. The public interest review by the COE requires a balancing of water supply and conservation and efficient use of water resources in all actions which involve the significant use of water, such as the Moffat Project. Section 320.4(m) 13. Didymo study and mitigation. Prior to any diversions from the Moffat Project, the permittee shall contribute to fund an independent study of the current algae build-up in the Colorado River below Windy Gap diversion dam known as "didymo." The study shall determine the causes of the problem and identify potential solutions, and shall be reviewed and approved by a panel of representatives from Denver Water, Northern Water and the Municipal Subdistrict, Bureau of Reclamation, COE, CDOW, EPA and Grand County. If the study shows that the reduction in streamflow is a principal cause of the "didymo" problem, diversions under the pending firming projects shall cease until a plan to alleviate impacts from didymo can be developed and successfully implemented. Rationale: This permit condition is necessary to prevent degradation of the aquatic environment. **Response #836-24:** 1. Additional Moffat Tunnel diversions would occur in average and wet years and would be concentrated during the runoff months in May, June and July. Typically, additional diversions would be greatest in wet years following dry years. There would be no additional diversions in dry years because Denver water would divert the maximum amount physically and legally available under its existing water rights and infrastructure

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		without additional storage in its system. 2. Please see the response to Item 1 above. 3. A more detailed evaluation of temperature analysis on the Fraser River and the Colorado River (between the Fraser River and the Blue River) was performed for the FEIS (see Sections 4.6.2 and 5.2). The FEIS has been updated to reflect the current (2012) Section 303(d) listings. In addition to monitoring stream temperatures, Denver Water has proposed to bypass additional water when stream temperatures reach a certain level. Denver Water is coordinating with the State on obtaining a 401 Certification for the Moffat Project. 4. While not mitigation for the Moffat Project, the Corps recognizes that Denver Water has provided funding through the CRCA that could be used to address future treatment plant issues. 5. Please see the response to Item 4 above. 6. Dillon and Williams Fork reservoirs have been drawn down repeatedly over history, as would be expected for the operation of water supply reservoirs. Potential shoreline exposure is not a new condition of either the Moffat Project or the No Action Alternative. Continued reservoir level variation would be expected due to the nature of Dillon and Williams Fork reservoirs functioning as water supply reservoirs. 7. The analyses of stream morphology, specifically the anticipated response of the streams to projected flow changes as the result of additional water diversions during high spring flow conditions were supplemented in the FEIS. Additional assessments included added sampling sites, review of historic photos, sensitivity analysis of sediment supply and sediment transport equations, and an assessment of Phase 2 sediment transport. Analyses of the

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		existing systems are provided in FEIS Section 3.3. Assessments of the streams' predicted response to proposed flow changes are provided in FEIS Sections 4.6.3 and 5.3. Additional text is included in FEIS 5.3 to provide more detail on the expectations for localized aggradation and degradation/armoring in natural streams, as well as the current extent of aggradation and degradation/armoring in the Fraser River. 8. Evaluation of flushing flow requirements ("low flow protection"), minimum instream flow rights, baseline flows and bypass flows are included in the FEIS. Appropriate conceptual mitigation components were incorporated into FEIS Appendix M. If a Section 404 Permit is issued for the Moffat Project, mitigation will be evaluated as required and appropriate. The Corps evaluated other RFFAs including the CRCA, LBD Cooperative Effort and the Fish and Wildlife Enhancement Plan (copies of which are provided in FEIS Appendix M). These actions may address the commenter's concerns related to flows. Through the LBD process, Denver Water and other stakeholders would coordinate resources to benefit the environment, including consideration of flushing flows and minimum instream flow rights. 9. The impact analysis was revised in the FEIS to present total environmental effects based on a comparison of Current Conditions (2006) and Full Use with a Project Alternative (2032). FEIS Chapter 4 displays the total environmental effects of the Moffat Project alternatives in combination with other RFFAs based on a comparison of the following scenarios. • Current Conditions (2006) reflects the related current administration of the Colorado and South Platte river basins, demands, infrastructure, and operations. Under the Current Conditions (2006) scenario, Denver

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		Water's existing average annual demand is 285,000 AF/yr. • Full Use with a Project Alternative (2032) reflects conditions in Denver Water's system when the Moffat Project is completed and in full use in 2032. This scenario reflects each action alternative in combination with other RFFAs. Under this scenario, the Moffat Project would be providing 18,000 AF/yr of new firm yield. The FEIS includes an updated 2032 water demand projection for Denver Water. 10. The Corps has independently reviewed and verified the assumptions used for PACSM and does not anticipate them to change prior to construction activity. 11. Denver Water currently provides this information to Reclamation on a yearly basis as part of its 1955 Blue River Decree. On average, Denver Water currently uses 285,000 AF of water annually and 50,000 AF of water is available for reuse. Once Denver Water has completed its existing infrastructure projects (e.g., gravel pit lakes and re-use plant) the average annual amount of unused reusable water is estimated to be 7,600 AF annually and Denver Water continues to look for opportunities to maximize reusable return flows. 12. All of Denver Water's distributors follow Denver Water's State-approved conservation plan and customers are eligible for the same rebates and other incentives provided by Denver Water to its customers. In other words, if one receives treated water from Denver Water, one is subject to the same conservation rules and rebates as those living within the City and County of Denver. Denver Water is planning to update its conservation plan with the State and the distributors will be listed individually so readers

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		will be able to see which water providers are covered by Denver Water's conservation plan. 13. Didymo is a native species that is creating water quality issues State-wide. Didymo apparently prefer cool temperatures and moderate to fast waters with relatively high base flows during the low flow part of the year (Kumar et al. 2009). Reduced flows or higher temperatures may discourage Didymo. The similarities in base flows in late summer and in the sediment transport (flushing) capabilities of rivers in the Project area indicate that the Proposed Action and other Project alternatives would have no impact on Didymo. An expanded discussion on Didymo is included in FEIS Sections 4.6.11 and 5.11. ***Comment #836-23*** *(ID 4659)**:*** *MITIGATION AND CONDITIONS FOR PROTECTION OF RECREATION RESOURCES 1. Kayaking and rafting in the Colorado and Blue Rivers • Participate in a cooperative-broad stakeholder group process as part of the Wild & Scenic Rivers management plan alternative to protect the fishing and recreational outstandingly remarkable values while facilitating water project operations. • Establish a baseline measurement of acceptable and optimal kayak and rafting river flow conditions in an average year. • Establish baseline conditions of stream flow suitable for kayaking and rafting in average water year conditions on a monthly basis. • Curtail diversion when acceptable and optimal stream flow conditions drop below baseline. • Establish an Adverse Impact Fund to mitigate specific impacts attributable to Denver Water. Require Denver Water to fund and replenish the fund as needed. • If conditions are violated, then use Fund revenues, based on economic benefits lost associated with boating days lost and direct funds to an economic development organization that focuses on tourism activity in western Grand County*

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		and Summit County. **Response #836-23:** Please see the response to Comment ID 4734. In 2006, the Kremmling and Glenwood Springs Field Offices of the BLM began the eligibility phase of a Wild and Scenic Rivers evaluation as part of their RMP revision process. The Wild and Scenic Rivers study process is composed of two main components: the eligibility phase and the suitability phase. The eligibility phase involves identifying eligible rivers and stream segments, and determining a tentative classification (Wild, Scenic, or Recreational). To be eligible for designation, a river must be free flowing and contain at least one ORV that is scenic, recreational, geological, fish-related, wildlife-related, historic, cultural, botanical, hydrological, paleontological, or scientific. Upon conclusion of the eligibility phase, the BLM prepared a Wild and Scenic Eligibility Report that identified five river segments within the Moffat Project EIS study area (portions of the Colorado River and the Blue River) that were eligible for inclusion in the NWSRS (BLM 2007). The Kremmling and Glenwood Springs Field Offices of the BLM issued a DEIS in 2011, which included the Stakeholder Group Management Plan as an alternative to Wild and Scenic designation. The Corps coordinated with the BLM regarding the Wild and Scenic River designation process throughout the NEPA process. Sections of the Colorado and Blue rivers within the Project area considered eligible for Wild and Scenic Rivers designation were described in DEIS Section 3.13.5 and FEIS Section 3.15.5. The Upper Colorado River Stakeholder Group Conceptual Plan for a Wild and Scenic Management Alternative was released on June 30, 2008 and an updated Upper Colorado River Wild and Scenic Stakeholder Group Management Plan was provided to the BLM in

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		January 2012. This document has been reviewed and included as a consulted resource in FEIS Section 3.15.5. As part of the CRCA, Denver Water has committed $1 million to the Colorado River Wild and Scenic Management Plan efforts. ***Comment #836-9*** *(ID 4658)**:*** *AGRICULTURAL RESOURCES. 1. Agriculture (Irrigation Ditch Operations) • Develop a baseline condition and describe the relationships between water flow, water temperature and irrigation ditch structures problems and failures. • Research remedies to upgrade irrigation systems so they can work in lower water flow conditions. • Use the Adverse Impact Fund for capital improvements to remedy irrigation diversion structure problems triggered by additional Denver Water diversions. If there are flow conditions that impact agricultural operations that cannot be remedied with a capital investment in the irrigation equipment, then consider payment for related losses in crop production revenue.* **Response #836-9:** The Corps relies on administration and enforcement of the State water laws to ensure downstream senior rights are protected. A Section 404 Permit would not impose conditions on the operation of the Project that are within the jurisdiction of Colorado Water Law. The Corps defers to the State to resolve water law issues. The Corps' analysis for the DEIS is based on diversions under Denver Water's existing decrees. When evaluating a permit application, the Corps' regulations provide: "The dispute over property ownership will not be a factor in the Corps public interest decision" (33 CFR Part 320.4[g]). Whether water rights or other property rights need to be obtained, utilized, expanded, or managed differently in order to fulfill the basic purpose of the Proposed Action does not preclude the Corps from permitting an otherwise practicable alternative (40 CFR Part 230.10). The Corps may issue a Section

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		404 Permit even if other Federal, State or local authorizations have not been obtained before the applicant has applied for a permit. ***Comment #836-22*** *(ID 4657)**:*** *COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS. Prior to construction of any project facility, Denver Water shall demonstrate to the satisfaction of the Corps of Engineers that it has received the necessary permits, approvals and conditions from all local, state and federal agencies including but not limited to: 1) State of Colorado 401 Certification; 2) compliance with the NWCCOG Water Quality Management Plan; and 3) a fish and wildlife mitigation plan as required by C.R.S. § 37-60-122.2.. Rationale: The Corps of Engineers cannot issue a 404 permit for a project that does not comply with law IV. SECTION 404 PERMIT APPLICATION: COMPLIANCE WITH GUIDELINES The Moffat Project fails to satisfy the following 404(b)(1) Guidelines. A. GUIDELINE – SECTION 230.10(a) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. 1. DEIS Conclusion The DEIS concludes that the Moffat Project is the least environmentally damaging practicable alternative. 2. DEIS Conclusion Errors The Corps has improperly limited the range of alternatives that were evaluated, and the method used to evaluate the relative adverse impacts of the alternatives is flawed. The screening process used by the COE to evaluate the original, broad range of alternatives resulted in the elimination of the majority of the alternatives, including those most likely to be the least environmentally damaging practical alternatives. See March 15, 2007 letter from Grand County on Alternatives Screening Report. The COE cannot reasonably determine the least*

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		environmentally damaging practical alternative was not eliminated from further consideration without the benefit of a comparative environmental analysis of the alternatives discarded solely based on relative cost. Under NEPA, cost, by itself, does not necessarily make an alternative unreasonable, infeasible, remote, speculative, impractical, or ineffective. See Province of Manitoba v. Norton, 398 F. Supp. 2d 41, 64-66 (D.D.C. 2005). "Without some reasonable attempt to measure [environmental] consequences instead of bypassing the issue out of indifference, fatigue, or through administrative legerdemain, the Court cannot conclude that [the Bureau] took a hard look at the problem." Id. at 65. **Response #836-22:** In addition to Special Conditions outlined in a Corps' Section 404 Permit, Denver Water would comply with all applicable Federal, State, and local regulations and obtain the appropriate permits prior to construction in Boulder County. A thorough and detailed alternative screening analysis was conducted for the proposed Moffat Project. The Corps evaluated compliance with the Section 404 regulations (FEIS Appendix K) and has not yet determined the LEDPA. Cost is one of several criteria that pertain to the "practicability" of an alternative. Under NEPA, the emphasis is on reasonable alternatives, which are broadly defined from a technical and economic standpoint. From the Corps' perspective, an alternative must not only be reasonable, it must also be "practicable," which is considered a subset of NEPA's reasonable alternatives criteria. The criteria for defining practicable alternatives include Project Purpose and Need, logistics, existing technology, and cost. Per Colorado Revised Statutes Section 37-60-122.2, Denver Water developed and sought approval for a

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		Fish and Wildlife Mitigation Plan in 2011. This plan was accepted by the Colorado Wildlife Commission and adopted by the CWCB in June of 2011 and appears in FEIS Appendix M. ***Comment #836-21*** *(ID 4656)**:*** *Non-Water Dependent Alternatives The DEIS Inappropriately Screened Out All Non-Water Dependant Alternatives. The Guidelines state that there is a presumption that "alternatives that do not involve special aquatic sites are available, unless clearly demonstrated otherwise" and that "all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." The COE has found that the proposed action is NOT water dependant because the basic purpose is water supply, and water supply projects "do not of necessity need to involve placement of dredged or fill material into waters of the U.S. . . ." (DEIS Appendix K-26.) Nevertheless, the DEIS screened out all non-water dependant projects AND selected a preferred alternative WITH "unavoidable" impacts to the aquatic environment. There will be "unavoidable adverse impacts from streamflow changes, increased diversion of water from the West Slope, and water temperature changes in the Fraser and Colorado river basins." (DEIS Page 4-199). Even though the DEIS states that "the five alternatives to be carried forward … represent a reasonable cross-section of practicable alternatives." (DEIS, page 2-9), all alternatives that survived the screening analysis are water dependant with approximately the same "unavoidable" impacts to the aquatic environment in the Fraser and Upper Colorado River. Examples of non-water dependant alternatives that were not considered are: • Conservation and Natural Replacement Savings Alternative that is consistent with recent historic Denver Water conservation achievements and*

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		stated objectives. • A Water Reuse Alternative that includes excess capacity from the WISE Cooperation Agreement. • An alternative that includes potential benefits from agricultural-urban cooperative water sharing agreements (AUAs) which can supplement surface water supplies at acceptable volumes and exclude the need to purchase water rights. All 20 non-water dependent alternatives that were considered were also eliminated by various screening criteria. These criteria and the reason for elimination are presented in the table that follows. [SEE TABLE XX: NON-WATER ALTERNATIVES IDENTIFIED IN DEIS – ELIMINATED BY SCREENING CRITERIA IN SOURCE FILE.] **Response #836-21:** Water conservation is part of the solution for water supply projects. The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Therefore, an all conservation option would not meet the Purpose and Need for the Project. It should be noted that almost half (i.e., 16,000 AF/yr) of the water supply shortfall identified by Denver Water would be met through conservation and water conservation is a part of all alternatives. Denver Water has implemented an aggressive conservation plan to achieve sustainable long-term reductions in demand. A summary of conservation measures implemented by Denver Water is provided in DEIS and FEIS Table 1-2. The partnership between Denver Water, Aurora, and

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		the South Metro Water Supply Authority would make use of excess reusable water as it becomes available from time to time. When available, and on a space available basis, the excess reusable water would be pumped from the lower South Platte River via Aurora's Prairie Water pipeline (north of Denver) to water users upstream (south of Denver). The Water Infrastructure and Supply Efficiency (WISE) project makes use of the same reusable water considered for Alternatives 8a, 10a, and other alternatives considered in the DEIS. While the WISE project could provide Denver Water some firm yield, it does not deliver water to where Denver Water needs the extra supply (north end). Alternatives 8a and 10a did deliver this water to north end and are considered practicable alternatives in this EIS. The WISE project was considered a RFFA and a discussion can be found in FEIS Section 4.5.3. The Corps conducted a detailed alternatives screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. The alternatives screening process did consider the other water sources (agricultural water transfer, conjunctive use and municipal reuse) besides transmountain diversions in combination with storage components other than Gross Reservoir. These various water sources and 29 storage components from the "long list" passed the initial Screen 1A, as discussed in DEIS Section 2.1.2, Screen 1B. Two methods of acquiring agricultural water (ID 601) were reviewed: purchase or dry-year lease. It was assumed that the agricultural rights were available downstream of the Metro WWTP. ***Comment #836-20*** *(ID 4655)**:*** *Screen 1A Criteria Five Screen 1A criteria are not valid because they inappropriately constrain the*

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		range of practicable alternatives. As stated by the Council on Environmental Quality and repeated in the DEIS (DEIS, page 2-1) In determining the range of reasonable alternatives to be considered, "The emphasis is on what is reasonable rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint using common sense, rather than simply desirable from the standpoint of the applicant." (CEQ, 40) These five (of 16) Screen 1A criteria eliminated 177 alternatives from 303 alternatives originally constructed. Screening Criterion PN2 eliminates all alternatives that do not supply water to the Moffat Collection System. This screening criterion is not necessary to achieve the basic purpose and need of delivering 18,000 acre feet of firm water supply and narrows all surviving criterion to those that impact Grand County. It eliminated 19 alternatives, including one of the twenty non-water alternatives, which are listed above. Screening Criterion PN3 eliminates all alternatives that do not produce a solution by 2016. Due to documented, historic Denver Water conservation practices already achieved, natural replacement assumed to have been achieved between 2001 and 2005, and future conservation policy commitments and expectations through the Tap-Smart Plan, we question whether an alternative needs to be in place by 2016. This criterion eliminated 15 alternatives, including four non-water alternatives, which are listed above. Screening Criterion L11 eliminates all alternatives that require Congressional Action. The reason is an alleged time consideration. As discussed above, we question the need to complete the project by 2016, which is ten years from today. This criterion eliminated 12 alternatives including three non-water alternatives, which are listed above. Screening Criterion LP1 eliminates all alternatives that do not provide 72,000 acre feet of new storage and a minimum storage of 15,000 acre feet in any one

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		impoundment. This eliminates consideration of a combination of water supply solutions that would be less environmentally damaging. If conservation had been properly built into the alternatives, then this capacity threshold would have been lower. Also, smaller storage vessels could be used to meet demand without becoming unmanageable. This is a powerful, high-level alternative that was designed for the management convenience of Denver Water. LP1 alone eliminated 94 of the 303 alternatives including one non-water alternative. Screening Criterion LP2 eliminates all alternatives that do not provide 20% of the needed additional firm yield, or 3,600 acre feet. It is unclear why the source of supply must be made up of options that supply greater than 3,600 acre feet. This second, internal Denver Water management criterion eliminates the remainder of alternatives what would consist of smaller projects that have less environmental impact. Denver Water's reason to, "prevent the incorporation of extraordinary levels of complexity" (DEIS, Page 2-6) is unsubstantiated and inadequate when balanced against the significant environmental impacts of all Project Alternatives. LP2 eliminated 37 alternatives including two of the twenty non-water alternatives, which are listed above. **Response #836-20:** The Purpose and Need for the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Purpose and Need statement addresses a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This system imbalance leads to vulnerability (or lack of system flexibility) to respond to water collection system outages and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Many underlying, interrelated needs can contribute to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need

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		statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not “independent” but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water’s ability to meet projected demand needs. Therefore, supplying water to the Moffat Collection System was appropriately used as a criterion for alternative screening. As shown in DEIS Table 1-1 and Section 1.4.1, the 379,000 AF of demand in 2032 already reflects 27,500 AF of water savings from conservation measures since 1980 and an additional 24,000 AF of savings from natural replacement. The Corps reviewed Denver Water’s estimates of savings from natural replacement as described in DEIS Appendix A (Supplemental Evaluation of Denver Water Demand Projections). Research from the American Water Works Association was incorporated into the calculations of natural replacement savings. The additional 16,000 AF/yr of conservation savings would come from other conservation measures which have been evaluated by Denver Water and are deemed to represent an achievable level of new future conservation in addition to previous conservation levels. Alternatives requiring a Congressional Action were screened out since that process is time consuming and would likely exceed the time allocated for planning and permitting. Approximately 20% of the total yield requirement was selected because providing a yield in one year out of four of at least 15,000 AF (3,750 AF/yr is approximately 20% of 18,000 AF/yr). If an alternative provides less than 15,000 AF once in four years or less than 3,750 AF/yr it was screened out. This criterion was primarily used to screen out water

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		supplies as opposed to storage components. For example, new water supplies in the Cache La Poudre, Big Thompson, St. Vrain, Clear Creek, and Lower South Platte basins were eliminated because these basins are generally over-appropriated and new water rights would likely not yield 3,750 AF/yr or 15,000 AF once in four years. For Screen No. 1, storage sites in these basins were screened independently of water supplies. For the water supplies that passed Screen No.1, refer to Table 2-9. Storage would also be required to provide firming and regulation to deliver the water when needed during droughts. Based on a storage-to-firm yield ratio of 4:1, it would require five reservoirs of 15,000 AF to provide the 72,000 AF of storage required to meet the Purpose and Need. Incorporating that many surface storage sites into an alternative is probably too complex to reasonably implement and manage. However, with this minimum storage volume, sufficient flexibility remains to consider components that might possibly be combined into a reasonable alternative in a subsequent screening phase. ***Comment #836-19*** *(ID 4654)**:*** *Stated Needs The Project Alternatives do not achieve 3 of the 4 stated needs. The following project needs are not met by the Project Alternatives that survived application of the screening criteria: Reliability. Denver Water states a need for three treatment plans and the Moffat Plant is at risk of running out of water. In reality, potential treated water shortages are due to conveyance capacity constraints between the North and South systems, not lack of treated water supply. None of the Project Alternatives actually resolves the reliability need because none includes conveyance capacity improvements. Vulnerability. The Proposed Action decreases "vulnerability" by decreasing reliance on the South System from 81% to 77%, a 5% reduction. (DEIS, Table 1-3). This miniscule decrease in reliance on the South System does not equate to a*

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		measurable decrease in vulnerability, especially when measured against the cost of the Proposed Action both in terms of money and environmental degradation. Improvements to system-wide security, maintenance and fire protection may reduce vulnerability better and more cost-effectively than any proposed Project Alternatives. Flexibility. It is unclear how 18,000 acre feet of additional supply provides any substantive benefits to system flexibility. There is no description of how planned and non-planned outages lead to supply interruptions to customers. Since none of the project alternatives that survived the screening tests achieve these three stated needs, those needs should not be included as justification for the Proposed Action, and projects that have less environmental damage could be given more serious consideration. d. Purpose and need statement An overly-narrow purpose and needs statement in the DEIS has restricted the range of alternatives evaluated in the DEIS to those that could provide 18,000 AF/year of new firm yield to the Moffat Treatment Plant. See Nat'l Wildlife Fed'n v. Whistler, 27 F.3d 1341, 1346 (8th Cir. 1994) (noting the Corps should not permit developers to "artificially constrain the Corps' alternatives analysis by defining the projects' purpose in an overly narrow manner"). **Response #836-19:** The Purpose and Need of the Moffat Project is to develop 18,000 AF/yr of new, annual firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. The proposed additional supply and reservoir storage address a projected shortfall in Denver Water's supply and an imbalance in Denver Water's Water Collection System. This imbalance has resulted in system-wide vulnerability issues, limited operational flexibility to respond to water collection system outages, and can seriously jeopardize Denver Water's ability to meet its present-day water needs. Many underlying, interrelated needs can contribute

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		to the discrete purpose of the Project. The Corps disagrees that the Purpose and Need statement is too narrow. Rather the Corps believes it is appropriate to integrate several underlying needs into one defined purpose, since the multiple needs of the applicant are not “independent” but rather are interconnected in the water supply issues that Denver Water is facing. Failing to address any one of the issues would jeopardize Denver Water’s ability to meet projected demand needs. The Corps conducted a detailed alternative screening process for the Moffat Project that considered over 300 water sources and infrastructure structural components (Alternatives Screening Report, Corps 2007) including agricultural water transfer, municipal reuse, and various storage locations. Denver Water does take action where it can to reduce system vulnerability. For example, Denver Water is involved with management of forests within its watersheds and thorough maintenance of its facilities. In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State’s 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership would accelerate and expand the USFS ability to restore forest health in watersheds critical for Denver Water’s water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. Even with these actions, there remains a vulnerability problem as long as 80% of the entire system’s supply is dependent on near perfect operation of the South

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		System. Denver Water has been and is currently engaged in efforts to identify and protect against actual or potential threats to all of its critical infrastructure and key resources and has implemented security program initiatives to include vulnerability assessments of its facilities. Support for Denver Water's security program includes an appropriate and significant level of recurring funding, and implementation of recommended physical security improvements. Additionally, Denver Water is in direct contact with and regularly participates with local, State, and Federal agencies in training and exercises to prepare for a response to any adverse actions that may occur. System-wide vulnerability is one of the underlying needs of the Moffat Project. When there are planned or unplanned shutdowns in Denver Water's system that require more water to be treated at Moffat Treatment Plant than would otherwise have occurred, the severe existing shortage of water available to the Moffat Treatment Plant is further exacerbated. In other words, even routine maintenance activities that require operating Moffat Treatment Plant more frequently deplete further the limited amount of supply available in the Moffat Collection System. Denver Water's North and South raw water systems that provide water to the treatment plants are not connected. During periods of high demand, the raw water being provided to the Moffat WTP simply runs out because there is not a sufficient amount placed in storage. Additionally, since 90% of storage and 80% of supply is provided by the South System, the raw water systems are currently severely imbalanced. This imbalance contributes to the North System's vulnerability and unreliability. Additionally, please refer to DEIS Section 1.4.4.1 Raw Water Availability to the Moffat WTP (System Reliability), that describes the potential for the Moffat Collection

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		System to run out of water in a single dry year. The Corps believes the vulnerability issue in the North System is adequately described and justified in the DEIS. ***Comment #836-18*** *(ID 4653)**:*** *GUIDELINE – SECTION 230.10(b)(1) No discharge of dredged or fill material shall be permitted if it: (1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard; 1. DEIS Conclusion The DEIS concludes that "none of the project alternatives violate [sic] applicable state water quality standards. . ."_____. 2. DEIS Conclusion Errors The DEIS concludes that there will be exccedences of temperature standards and fails to accurately predict impacts of the project on existing exceedences of temperature and other water quality standards. Moffat Project has the potential to cause or contribute to these water quality standards violations: Ranch Creek – Temperature. Increases in exceedences of the daily maximum (DM) (acute) standard. There also is a potential for increased chronic standards (MWAT) violations. Mainstem of the Fraser River – Temperature. Increases in exceedences of DM and MWAT state standards. There is a potential for increased violations, particularly MWAT. Fraser River – Copper. Limited data indicates existing ambient water quality is not in attainment of standards for protection of aquatic life. Colorado River and other tributaries to the Fraser River – Temperature. Increased exceedences of the MWAT and DM downstream of Windy Gap Reservoir to Kremmling (DEIS, page 4-76). Vasquez Creek – Temperature. . Increased temperature impacts have not been analyzed. The DEIS concludes that "[i]t is not known if the stream standards for temperature would be exceeded due to the increased diversions." (DEIS at 4-40). No effort is made to either quantify the frequency of exceedences or determine whether they will result in DM (fatal) or MWAT (chronic)*

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		violations. **Response #836-18:** Please see the response to Comment ID 4707. ***Comment #836-17*** *(ID 4652)**:*** *GUIDELINE – SECTION 230.10(c) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations, and tests required by subparts B and G, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts. 1. DEIS Conclusion "… it is the opinion of the Corps that the activity will not cause or contribute to significant degradation of waters of the United States, including adverse effects on human health, life stages of organisms depending on the aquatic ecosystem, ecosystem diversity, productivity and stability and recreational, 'esthetic' and economic values." (DEIS, Appendix K, K-27) 2. DEIS Conclusion Errors As discussed in more detail in this document, there will be significant degradation of the waters of the United States. Moreover, the DEIS lacks sufficient information and analysis to make the factual findings required by this section (c).* **Response #836-17:** The Corps has complied and will comply with all Federal regulations for the preparation of the described EIS and the Section 404 Permit. Refer to FEIS Appendix K for information regarding compliance with the Section 404 regulations. ***Comment #836-16*** *(ID 4651)**:*** *Adverse Effects to Fish and Aquatic Life* *The Fraser, Blue and Williams Fork river basins and the Upper Colorado River have suffered dramatic*

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		hydrological changes due to transmountain diversion projects that currently divert a large percentage of native stream flows across the Continental Divide. The aquatic environment in several of these streams has already been degraded, as evidenced by elevated stream temperatures, loss of microinvertebrate and native fish populations, sediment accumulation, and the presence of invasive species. The Moffat Project, alone and in combination with other reasonably foreseeable water development, including the Windy Gap Firming Project, has the potential to significantly degrade those conditions further. The DEIS fails to consider existing degradation or to evaluate the potential for the Project's additional diversions in this already depleted system to cause non-linear responses, leading to the loss of aquatic resources. Moreover, the DEIS acknowledges that Moffat Project diversions will cause or contribute to exceedences of stream temperature standards to the point considered to be lethal to fish and microinvertebrates, but unexplainably concludes such impacts are "negligible" to "moderate." Likewise, the DEIS acknowledges that the Moffat Project diversions will dry up tributary streams where aquatic life is present, but concludes such effect is "negligible." Accordingly, no meaningful measures to avoid, minimize or mitigate the Project's admitted degradation of the natural environment are offered. **Response #836-16:** Please see the responses to Comment IDs 4690 and 4692. FEIS Section 4.6.1 has been revised to include information concerning the total amount of water diverted from tributaries. This information has been incorporated into the aquatic biological resources sections of the FEIS (Sections 3.11, 4.6.11, and 5.11). Both the DEIS and FEIS include discussions of the magnitude and severity of diversions and if the streams are fully diverted or have bypass flows.

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		Comment #836-15 *(ID 4650)**:*** *Adverse Effects on Recreational, Aesthetic and Economic Values The DEIS provides no foundation upon which to conclude this statement with respect to significantly adverse effects on recreation, aesthetic and economic values. There are factual and methodological reasons to conclude that the statement is wrong. (i) Recreational Values Fishing. The DEIS contains no discussion of the relationship of stream flow, water quality and water temperature to fishing. Any conclusions regarding the impact on fishing are unsubstantiated. If this research had been conducted, then these relationships would have become apparent. (Tetra Tech, 2008) Even though the DEIS acknowledges the Moffat Project's potential to exceed maximum water temperatures in the Fraser River, St. Louis Creek, Ranch Creek. (DEIS, Appendix K, page K-41, K42), in Steelman Creek, Bobtail Creek, Jones Creek and McQueary Creek (DEIS, page K-43) and in the Colorado River (DEIS, page K-44) it concludes elsewhere (DEIS, pages 4-374, 4-377, 4-431) there are no recreation or socioeconomic impacts related to fishing. Rafting / Kayaking. The DEIS acknowledges the relationship between stream flow on the Colorado River and Blue River and their suitability for kayaking and rafting. However, it incorrectly concludes that there is a beneficial impact to kayaking on the Colorado River (DEIS, pages 4-375, 4-377) and a neutral to beneficial impact on rafting in the Colorado River (DEIS, pages 4-374, 4-376). The DEIS (incorrectly) incorporates stream flow changes due to the proposed Windy Gap Firming Project in the 2016 "baseline" conditions. According to the Windy Gap Firming Project DEIS, this Project and its cumulative effects trigger streamflow reductions and related reductions in days suitable for kayaking and rafting of up to 43% on reaches of the Colorado River. [1] FOOTNOTE: [1] Windy Gap Firming Project – Draft Environmental Impact Report (DES 08-30), Tables 3-124, 3-126, 3-127, 3-128, 3-129 and 3-130). Resorts Depending on Water-Based Recreation.*

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		The DEIS provides no discussion of land use in its sections on affected environment, environmental consequences or socioeconomic effects. There is no mention of the relationship between the rivers and tributaries and resort developments in Grand County. There are resort developments in Grand County that inextricably rely on the Fraser River, the Colorado River and their tributaries. Devil's Thumb Ranch (Fraser), Winter Park Resort (Fraser River), Elk Trout Lodge (Colorado River) and others rely on healthy and visually appealing streamflow to enhance the visitor experience. **Response #836-15:** Please see the response to Comment ID 4735. ***Comment #836-14*** *(ID 4649)**:*** *Aesthetic Values The DEIS acknowledges the relationship of the visual experience of rivers in mountain communities dependent on visitation but "concludes" with a dismissive statement that river water levels fluctuate and visitors expect that. (Page 3-299) It relies upon one study in North Carolina to conclude that viewers react adversely to both low and high streamflow levels. (DEIS, page 4-404). It concludes that the Moffat Project has little impact on lower stream flows which will occur in the winter and early spring months and flow reductions in the summer are within the range of natural variability. Using one example, the DEIS reports that the Moffat Project would trigger average flow reductions on the Fraser River at Vasquez Creek, a highly visible location in the heart of the Town of Winter Park of 37% in June (DEIS, page 4-37) The conclusion that this average stream flow reduction is not noticeable to visitors is unsubstantiated. Further reductions in the visual resources of the Fraser, Williams Fork, Blue and Colorado Rivers and tributaries with high visitor visibility or which are significant assets to adjacent visitor activities or real estate uses may decrease visitation to Grand County and Summit County. To both Counties, tourism is a "basic sector"*

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		industry **Response #836-14:** The statement made on page 3-299 of the DEIS -- "As a result, a stream is a dynamic system that rarely remains static and the viewer has an expectation of observing change over the course of the seasons." is not meant to be dismissive of the importance of stream flows on the visual setting of mountain or other communities. The fluctuation of river water levels, both diurnally and seasonally, is a widely accepted consequence of natural hydrologic cycles, reservoir management, irrigation practices, and diversions for other purposes that have occurred for more than a century in Colorado. Although relatively little academic research has been completed on the relationship between stream flows and aesthetics, available research indicates that changes during periods of low flows (which would not be changed by the Moffat Project) are the most sensitive to viewers and that peak flows are not necessarily viewed as having a higher visual quality. Additional studies on this relationship have been reviewed and incorporated in FEIS Section 5.17.1.2. By and large, these studies further substantiate the conclusions drawn in the North Carolina study. ***Comment #836-13*** *(ID 4648)**:*** *Economic Values The DEIS acknowledges Grand County's reliance on tourism and recreation. (DEIS, page 3-330). However, no quantitative basis is provided to connect potential adverse impacts to the Grand County economy, or Summit County, and no basis is provided upon which to judge whether any impact is "significantly adverse" to the Grand County economy or not. The scale of the project and the applicant is substantially greater than the scale of Grand County, using any common criteria. For example, Grand County's population (13,781, US Census, 2008) is 1.1% of the Denver Water service area (1,293,000 people, www.denverwater.org) What might seem to be insignificant quantities in*

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		terms of volume of water diverted, summer recreation opportunities diminished, resort development vacancy increases, agricultural irrigation problems exacerbated or increasing wastewater provider costs have a very significant impacts on Grand County. There are potential significantly adverse impacts on the local economy due to adverse impacts associated with recreation and aesthetic values, described above, plus agricultural impacts and wastewater provide impacts described below. **Response #836-13:** The description of Grand County's economy, including the importance of the tourism economy, was expanded as necessary as part of FEIS Section 3.19. FEIS Section 4.6.19 addresses total environmental effects, including the impacts of past, present and RFFAs, to Grand County's economy, water and wastewater providers. FEIS Section 5.19 addresses the impacts resulting solely from Moffat Project alternatives. The analysis of socioeconomic impacts to Grand County from Moffat Project alternatives was reviewed and expanded as appropriate for the FEIS based upon the conclusions about impacts on other resources, such as recreation and surface water, and the resulting impacts upon of the county's economic activity. If the alternatives do not cause any socioeconomic effects, a limited amount of information or discussion was added to the affected environment section. The significance of socioeconomic effects in Grand County is determined by comparison to its own affected environment, not by comparison to the Denver Metropolitan area. ***Comment #836-11*** *(ID 4647)**:*** *Agricultural Uses The DEIS does not address agricultural land impacts in Grand or Summit Counties at all. If proper field investigation had been conducted, then analysts would have discovered*

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		that there are ranchers who use the river, creek and tributaries in the Fraser Valley upstream from Granby for agricultural purposes and report problems with their irrigation ditch operations due to low flows not only during dry years but also during average years. Additional stream flow reductions would further compromise the agricultural irrigation pump intake systems, perhaps to failure in some situations. Significant drops in streamflow and related increases in temperature hamper or prohibit irrigation activity either because there is inadequate pressure or because dead fish and algae clog the irrigation gate network. Additional Moffat Project diversions will trigger lower stream flows that will exacerbate an already troublesome condition. **Response #836-11:** Several water rights that pump water from the Colorado River were granted senior status in relation to C-BT Project water rights per Senate Document 80. While these rights were granted senior status with respect to the C-BT Project, they are operated in strict priority in relation to Denver Water's water rights. The physical ability for some of these water rights to pump water from the Colorado River can be limited during dry years and late in the summer when flows in the Colorado River are low. The proposed Moffat Project would not affect low flows because there would be no additional diversions in dry years due to the Moffat Project. In dry years and late in the summer, Denver Water already diverts the maximum amount physically and legally available under their existing water rights and infrastructure without additional storage in their system, in which case, there would be no further reduction in low flows due to the proposed Moffat Project. In addition, Denver Water's out-of-priority diversions from the Fraser River basin would be replaced with releases from Williams Fork Reservoir, resulting in no change in Colorado River flows below the confluence with the Williams Fork River due to Denver Water's out-of-priority diversions. In summary, there would be

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		little to no impact on the ability of these water rights to pump from the Colorado River due to the proposed Moffat Project. A description of Grand County land uses is included in FEIS 3.16. Impacts to agriculture in Grand County were addressed as part of Chapters 4 and 5 of the FEIS, including both the land use and socioeconomic impact sections. The FEIS contains a more detailed discussion of water temperature and nutrient levels in the Fraser basin in Sections 4.6.2 and 5.2. Aquatic resources are discussed in FEIS Sections 4.6.11 and 5.11. ***Comment #836-12*** *(ID 4646)**:*** *Wastewater Treatment Plants Stream depletions in the Fraser and Blue Rivers, as well as fluctuations in Dillon Reservoir, will have impacts to wastewater treatment plants. Examples include: Chronic copper concentrations in the Fraser River exceed water quality standards and will increase with the reduction in dilution flows associated with additional diversions. This may result in copper limits in wastewater treatment plant discharge permits based on the diluting capability of the Fraser River at low flow. Treatment processes to remove copper would be a significant expense. When releases below Dillon Reservoir drop below 50 cubic feet per second, there will be impacts to the Silverthorne Joint Sewer Authority's Blue River Wastewater Treatment Plant ("JSA"). The JSA's discharge permit limits are tied by the CDPHE to the 50 cubic feet per second release from Dillon Reservoir and intervening inflows. The JSA estimates that a flow of 35 cubic feet per second for three days would result in permit changes mandating approximately $5 million in capital costs for new metals removal processes, plus operation and maintenance costs into perpetuity. EPA Region 8 Guidance for Whole Effluent Toxicity testing (August 1997) mandates additional bio-monitoring in situations where the ratio of effluent to stream flow dilution is greater than*

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		10%. This may be the case for the JSA, Winter Park Water and Sanitation District, and Fraser Sanitation District as a result of reduced flows in the Blue and Fraser Rivers and will require substantial additional costs to address. The only wastewater treatment plant evaluated in the Blue River watershed is the JSA. There are three major municipal discharges into Dillon Reservoir that could be affected by the increasingly fluctuating reservoir level associated with the Moffat Project. In order stay in compliance with their permit limits, dischargers may be required to modify their facilities, or to upgrade their treatment plants to be capable of treating to a level that complies with permit limits at the end of pipe. For example, the Snake River Sewer Treatment Plant discharges into the Snake River arm of Dillon Reservoir. If this situation were to impact this plant, costs could range from $400,000 to $1.5 million to extend their discharge pipe out ½ to 2 miles into the reservoir to chase their mixing zone. Their other alternative would be to construct metals removal facilities (estimated cost in 2004 was over $14 million plus annual operations and maintenance costs. Impacts to the Town of Hot Sulphur Springs wastewater treatment plant were not considered. The Town of Hot Sulphur Springs is already having difficulty meeting their permit requirements during low flow months. Reduced flows in the Colorado River, combined with increased incoming nutrients and temperatures, may result in additional violations, which will trigger additional monitoring requirements at additional cost, and over the long term require construction of a new wastewater treatment facility. **Response #836-12:** Please see the response to Comment ID 4699. In addition, the proposed Project would not reduce Denver Water's requirement to release 50 cfs from Dillon Reservoir. ***Comment #836-10*** *(ID 4645)**:*** *GUIDELINE – SECTION 230.10(d) Except as*

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		provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. 1. DEIS Conclusion The DEIS concludes that "All practicable steps have been taken to minimize potential adverse effects to aquatic resources resulting from construction and operation of the Project." (DEIS, page k-31). The DEIS also lists measures that will be implemented to minimize impacts of the Moffat Project. (DEIS, page K-27). . 2. DEIS Conclusion Errors The USACE has offered no measures to minimize acknowledged adverse impacts to the aquatic ecosystem in west slope streams. E. FACTUAL DETERMINATIONS – SECTION 230.11. The Section 230.11factual determinations made in the DEIS rely on the analysis of environmental consequences contained in Chapter 4. As more fully described throughout this report, because of the inadequacies and errors throughout the DEIS regarding west slope hydrology and water-based impacts of the project, the factual determinations made in the DEIS in Appendix K are unreliable at best, and often times wrong. Because the factual determinations are not supported, the conclusions with respect to compliance with the 404(b)(1) standards are suspect. **Response #836-10:** The Corps applied rigorous and scientifically acceptable methodology for each resource analyzed for the Moffat Project in order to comply with Clean Water Act (CWA) Section 404 guidelines. The direct, indirect, and cumulative effects were evaluated for each resource in DEIS Chapter 5 and FEIS Chapter 4. Additionally, impact thresholds (no impact, negligible, minor, moderate, major) were applied to each resource to allow for comparison of impacts between alternatives. Conceptual mitigation measures for Project impacts

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		that cannot be avoided are described in FEIS Appendix M.

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Comment #864 David Bailey, President Silver Creek Water and Sanitation District P.O. Box 4010 Silver Creek, CO 80446	SILVER CREEK WATER AND SANITATION DISTRICT RECEIVED FEB 2010 February 9, 2010 Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, Co. 80128 Mr. Franklin, The SilverCreek Water and Sanitation District has read the Moffat Firming draft EIS Executive Summary and feel that certain impacts to our District have been omitted in this version of the EIS. The Clean Water Act requires that all impacts be addressed, so we are writing to inform you that these impacts to our District will need to be acknowledged and mitigated in the final EIS. The increased diversions from the Fraser River will have the most potential impact on our wastewater treatment costs. The Granby Sanitation District wastewater treatment plant treats our wastewater and discharges into the Fraser River. The discharge permit for this plant is based on historic flows. To diminish these historic flows could require future permits to be written with more stringent standards requiring additional and costly treatment to the wastewater treatment plant. The constituents in our District should not be penalized because Denver Water is profiting from additional diversions. The final EIS needs to guarantee local Districts that treat wastewater that they will not incur additional expenses caused by lower flows. If lowering the flows in the Fraser River causes additional treatment expenses, then Denver Water needs to commit through the EIS to incur these additional expenses. The future discharge of our wastewater into the Fraser River will contain the same amount of nutrients (Nitrate and Phosphorus) that we are discharging today. With reduced flows the concentration of these nutrients will increase. The Fraser River with these increased nutrients will be pumped through the Colorado Big Thompson project into Grand Lake which is already plagued with algae and clarity problems. Higher concentrations of nutrients in the water flowing through Grand Lake will exacerbate this problem. The Three Lakes region which includes Grand Lake plays a major role in our tourist based economy. The economic impact of degrading Grand Lake and harming the second home market that our District serves is not addressed in Denver Water's draft EIS. The EIS is incomplete until this impact is addressed. P.O. Box 4014 • SilverCreek, Colorado 80446 • 970/887-2850	***Comment #864-1*** *(ID 1129)**:*** *The SilverCreek Water and Sanitation District has read the Moffat Firming draft EIS Executive Summary and feel that certain impacts to our District have been omitted in this version of the EIS. The Clean Water Act requires that all impacts be addressed, so we are writing to inform you that these impacts to our District will need to be acknowledged and mitigated in the final EIS.* **Response #864-1:** The DEIS focused on water providers that use surface water and wastewater providers that discharge into the Fraser River, Colorado River, and Blue River (downstream of Dillon Reservoir). As Silver Creek Water and Sanitation District does not fit either of these categories, it was not included in the DEIS. Potential impacts that were identified in comments received on the DEIS were considered for the FEIS. ***Comment #864-3*** *(ID 1130)**:*** *The increased diversions from the Fraser River will have the most potential impact on our wastewater treatment costs. The Granby Sanitation District wastewater treatment plant treats our wastewater and discharges into the Fraser River. The discharge permit for this plant is based on historic flows. To diminish these historic flows could require future permits to be written with more stringent standards requiring additional and costly treatment to the wastewater treatment plant. The constituents in our District should not be penalized because Denver Water is profiting from additional diversions. The final EIS needs to guarantee local Districts that treat wastewater that they will not incur additional expenses caused by lower flows. If lowering the flows in the Fraser River causes additional treatment expenses, then Denver Water needs to commit through the EIS to incur these additional expenses.*

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	In the EIS Denver Water admits that their project will increase the number of incidents where temperatures in the Fraser River will exceed the State's stream temperature standards but they offer no mitigation. The stream section on the Fraser River that our wastewater is discharged into is being considered for the State's 303d list for temperature. This section of the river is already impaired by higher temperatures and lower flows for more extended periods of the year will exacerbate this problem. The State as a regulatory agency can only come after the dischargers when a stream reach is placed on the 303d list as an impaired section of river even though the temperature problems in the Fraser River are caused by lack of flows and not the dischargers. The temperature mitigation offered in the draft EIS is only to monitor stream temperatures. This mitigation offered does nothing to remedy the temperature problem. The local dischargers are already monitoring stream temperatures which we are finding to be alarmingly high. Some temperatures exceed the State's stream temperature standards and the temperatures that can sustain a cold water fishery. Denver Water must mitigate the impact of higher temperatures caused by lower flows in the Fraser River. Without addressing the above impacts mentioned and mitigating those impacts, Denver Water will not have a complete EIS. To move this project forward, we request that the US Army Corps of Engineers not approve the EIS until it includes the impacts and mitigations requested in our letter. Sincerely, David Bailey Silver Creek Water & Sanitation David Bailey President cc Environmental Protection Agency	**Response #864-3:** Additional evaluation of the Granby NPDES discharge permit for the domestic WWTP was performed for the FEIS. The potential impact most likely to affect treatment costs is reducing the acute low flow, on which the permit is based. Additional nutrient-based water quality evaluation was performed for the Fraser River, as well. Impacts from projected changes in flow and changes in nutrient levels are discussed in FEIS Sections 4.6.2 and 5.2. In addition, the proposed Project would divert during the high flow periods and would not reduce the low flow periods. ***Comment #864-4*** *(ID 1131)**:*** *The future discharge of our wastewater into the Fraser River will contain the same amount of nutrients (Nitrate and Phosphorus) that we are discharging today. With reduced flows the concentration of these nutrients will increase. The Fraser River with these increased nutrients will be pumped through the Colorado-Big Thompson project into Grand Lake which is already plagued with algae and clarity problems. Higher concentrations of nutrients in the water flowing through Grand Lake will exacerbate this problem. The Three Lakes region which includes Grand Lake plays a major sole in our tourist based economy. The economic impact of degrading Grand Lake and harming the second home market that our District serves is not addressed in Denver Water's draft EIS. The EIS is incomplete until this impact is addressed.* **Response #864-4:** Additional water quality analysis, including evaluation of nutrients, was performed for the Fraser River and the Three Lakes area. Please refer to FEIS Sections 4.6.2 and 5.2.

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		Comment #864-5 *(ID 1132)**:*** *In the EIS Denver Water admits that their project will increase the number of incidents where temperatures in the Fraser River will exceed the State's stream temperature standards but they offer no mitigation. The stream section on the Fraser River that our wastewater is discharged into is being considered for the State's 303d list for temperature. This section of the river is already impaired by higher temperatures and lower flows for more extended periods of the year will exacerbate this problem. The State as a regulatory agency can only come after the dischargers when a stream reach is placed on the 303d list as an impaired section of river even though the temperature problems in the Fraser River are caused by lack of flows and not the dischargers. The temperature mitigation offered in the draft EIS is only to monitor stream temperatures. This mitigation offered does nothing to remedy the temperature problem. The local dischargers are already monitoring stream temperatures which we are finding to be alarmingly high. Some temperatures exceed the State's stream temperature standards and the temperatures that can sustain a cold water fishery. Denver Water must mitigate the impact of higher temperatures caused by lower flows in the Fraser River.* **Response #864-5:** Additional water quality analyses have been performed on the Fraser River and the Three Lakes area, including various temperature studies. Refer to FEIS Sections 4.6.2 and 5.2. Appropriate conceptual mitigation is discussed in FEIS Appendix M and, if a Section 404 Permit is issued, mitigation will be included as a condition of the Section 404 Permit. In addition to monitoring stream temperatures, Denver Water has proposed to bypass additional water when stream temperatures reach a certain level.

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		Comment #864-2 *(ID 1133)**:*** *Without addressing the above impacts mentioned and mitigating those impacts, Denver Water will not have a complete EIS. To move this project forward, we request that the US Army Corps of Engineers not approve the EIS until it includes the impacts and mitigations requested in our letter.* **Response #864-2:** Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental and social effects according to NEPA and the Corps' CWA Section 404 regulations.

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Comment #866 Kevin Batchelder, Town Manager Town of Silverthorne 601 Center Circle, P.O. Box 1309 Silverthorne, CO 80498	SILVERTHORNE COLORADO 601 Center Circle • P.O. Box 1309 • Silverthorne, Colorado 80498 December 9, 2009 RECEIVED DEC 2009 **VIA U.S. MAIL and E-MAIL:** j.scott.franklin@usace.army.mil Mr. J. Scott Franklin, P.E. Denver Regulatory Office U.S. Army Corps of Engineers 9307 South Wadsworth Blvd. Littleton, CO 80128-6901 **Re: Moffat Collection System Project Draft Environmental Impact Statement; Request for Extension of Comment Period** Dear Mr. Franklin: The Town of Silverthorne joins in the request of the Northwest Colorado Council of Governments Water Quality and Quantity Committee for a 45-day extension of time to review the Moffat Collection System Project Draft Environmental Statement. As you know the public meeting that was scheduled to be held in Summit County on December 8 was canceled and it is our understanding that it will not be held until sometime next month. For this reason, and for all of the other reasons stated in NWCCOG's December 8 letter to you, Silverthorne believes that a 45-day extension of the comment period is appropriate and necessary in order to allow the public and affected governmental entities a meaningful opportunity to consider the draft EIS in light of any additional information that may be provided at the Summit County public meeting with adequate time after that to formulate written comments. Thank you for your consideration of this request. Sincerely, Kevin Batchelder Town Manager Town of Silverthorne cc: Silverthorne Town Council Shanna Koenig, NWCCOG General Government (970) 262-7300 Fax (970) 262-7312 Public Safety (970) 262-7320 Community Development (970) 262-7360 Public Works (970) 262-7340 Recreation & Culture (970) 262-7370	***Comment #866-1** (ID 1134):* *The Town of Silverthorne joins in the request of the Northwest Colorado Council of Governments Water Quality and Quantity Committee for a 45-day extension of time to review the Moffat Collection System Project Draft Environmental Statement. As you know the public meeting that was scheduled to be held in Summit County on December 8 was canceled and it is our understanding that it will not be held until sometime next month. For this reason, and for all of the other reasons stated in NWCCOG's December 8 letter to you, Silverthorne believes that a 45-day extension of the comment period is appropriate and necessary in order to allow the public and affected governmental entities a meaningful opportunity to consider the draft EIS in light of any additional information that may be provided at the Summit County public meeting with adequate time after that to formulate written comments.* **Response #866-1:** The following is a summary of the initial public comment period time frame and subsequent extensions. A Notice of Availability (NOA) of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an

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		additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days.

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Comment #870 Board of Directors Lakehurst Water and Sanitation District 7995 West Quincy Avenue Littleton, CO 80123	LAKEHURST Water and Sanitation District February 23, 2010 RECEIVED TO: Scott Franklin, Moffat EIS Project Manager Corps Denver Regulatory Office 9307 S. Wadsworth Blvd. Littleton, CO 80128 FROM: Board of Directors Lakehurst Water and Sanitation District 7995 W. Quincy Ave. Littleton, CO 80123 RE: Moffat Collection System Project – Public Comment on Draft EIS Lakehurst Water & Sanitation District serves approximately 5,544 customer accounts in southwest Jefferson County. Our district is a distributor of Denver Water. Our service area has participated with all of Denver Water's conservation efforts. We have seen a decline in overall water usage by 15% over the past several years. However, even with significant conservation efforts, we still need additional water supply. The 2002 drought showed the vulnerabilities in the north end of Denver Water's system. Treated water for the south side of the system had to be delivered through a makeshift system that included open ditches. The treated water had to be re-treated before being used on the north end of the system. If there are natural disasters that affect Stronita Springs Reservoir, such as the 2002 Hayman Fire, the Moffat System would become the sole water supply for all Denver Water and its distributors. Currently 80 percent of Denver Water's raw water supply flows through Strontia Springs Reservoir on Denver Water's south end, highlighting the need for additional supply on Denver Water's north end in the Moffat Collection System. Our District is charged with providing water to all customers in our service area. While there is debate about growth issues, those debates are best handled by the legislative process and not by water utilities. Denver Water has identified a water supply shortfall of 34,000 acre-feet of water by 2030. The question is not *if* we will need this water; it's *when*. Denver Water, in cooperation with Distributor participation plans to address roughly 16,000 acre-feet per year of the shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The reserves are needed as issues such as climate change and forest fires 7995 WEST QUINCY AVENUE • LITTLETON, COLORADO 80123-1319 (303) 985-7895 • FAX (303) 988-7291	***Comment #870-1*** *(ID 1137)**:*** *Lakehurst Water & Sanitation District serves approximately 5,544 customer accounts in southwest Jefferson County, Our district is a distributor of Denver Water. Our service area has, participated with all of Denver Water's conservation efforts. We have seen a decline in overall water usage by 15% over the past several years. However, even with significant conservation efforts, we still need additional water supply. The 2002 drought showed the vulnerabilities in the north end of Denver Water's system. Treated water for the south side of the system had to be delivered through a makeshift system that included open ditches. The treated water had to be re-treated before being used on the north end of the system. If there are natural disasters that affect Strontia Springs Reservoir, such as the 2002 Hayman Fire, the Moffat System would become the sole water supply for all Denver Water and its distributors. Currently 80 percent of Denver Water's raw water supply flows through Strontia Springs Reservoir on Denver Water's south end, highlighting the need for additional supply on Denver Water's north end in the Moffat Collection System. Our District is charged with providing water to all customers in our service area. While there is debate about growth issues, those debates are best handled by the legislative process and not by water utilities. Denver Water has identified a water supply shortfall of 34,000 acre-feet of water by 2030. The question is not if we will need this water; it's when. Denver Water, in cooperation with Distributor participation plans to address roughly 16,000 acre-feet per year of the shortfall through conservation measures. The additional 18,000 acre-feet is expected to be addressed with the Moffat Collection System Project. It is our understanding the Denver Water Board will use some of the conservation savings to increase its strategic reserves. The reserves are needed as issues such as climate*

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	create a need for increased reserves. As uncertainties increase, so should the strategic reserve of raw water. Conservation and Denver Water's recycled water system have decreased the demand for some of that new supply, but there is a need for additional supply, especially on the north end of Denver Water's system. We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County. Respectfully Submitted, Board of Directors Lakehurst Water & Sanitation District	*change and forest fires create a need for increased reserves. As uncertainties increase, so should the strategic reserve of raw water. Conservation and Denver Water's recycled water system have decreased the demand for some of that new supply, but there is a need for additional supply, especially on the north end of Denver Water's system.* **Response #870-1:** The Corps notes the comment. ***Comment #870-2*** *(ID 1138)**:*** *We support the Moffat Collection System Project because it will help us continue to provide the water our customers need. We also support Denver Water's efforts to enhance the environment while mitigating environmental issues this project may create on the West Slope and in Boulder County.* **Response #870-2:** The Corps notes the support of the Moffat Project. Prior to making decisions on the proposed Project, the Corps will evaluate and consider the Project's environmental effects according to NEPA.

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Comment #876 Thomas A. Clark, Mayor Town of Kremmling P.O. Box 538 Kremmling, CO 80459-0538	**Town of Kremmling** P.O. Box 538 Kremmling, CO 80459-0538 970/724-3249 970/724-9409 Fax RECEIVED DEC 2009 12/16/2009 DEIS Moffat Project Town of Kremmling Comments Thank you for this opportunity to comment on the Moffat Project. The following are the concerns, comments, and recommendations from the Mayor, Trustees and staff of the Town of Kremmling. The "no action" alternative is not acceptable, as the Town believes the current system is broken (please see attached letter of 10/31/2009 on the Windy Gap Firming Project). Reduction of flows below Windy Gap in mid July to early October is not acceptable as flows are already too low. The health of the fish (Gold Medal waters, (fig. 1), algae blooms and agriculture intakes (fig. 1) above river levels has already occurred. Our main concerns are the cumulative effects with Windy Gap Firming Project for fish habitat, water quality, and environmental/ecological impacts Other concerns are climate variations, impacts of the forest die off due to mountain pine beetle on approximately 500,000 acres in Grand County, and sufficient monitoring for river health. The negotiations taking place now for the endangered fish water may help some of these issues of low flows during the summer months and should be incorporated. Grand County's Stream Management Plan can help identify needs for healthy fish habitats all year long and should be made part of the environmental impact statement (EIS). The continued coordination between the operators of the reservoirs, Northern Water Conservancy District, Denver Water, the Colorado River Water Conservation District and the Bureau of Reclamation as well as other members of the historic users pool has recently shown to be very effective and needs to be continued as part of the EIS. There needs to be a comprehensive and scientific monitoring plan for the river. At any time in the future if the science proves that there is degradation to fish habitat, and/or environmental/ecological health then the environmental impact statement needs to be reopened so that these matters can be mitigated. Again, thank you for this opportunity to comment. We look forward to working with all parties to find solutions to these concerns. Thomas A. Clark, Mayor	***Comment #876-1*** *(ID 1139)**:*** *Thank you for this opportunity to comment on the Moffat Project. The following are the concerns, comments, and recommendations from the Mayor, Trustees and staff of the Town of Kremmling.* **Response #876-1:** The Corps notes the comment. ***Comment #876-2*** *(ID 1140)**:*** *The "no action" alternative is not acceptable, as the Town believes the current system is broken (please see attached letter of 10/31/2009 on the Windy Gap Firming Project).* **Response #876-2:** The Corps notes the comment. The No Action Alternative is one which results in no construction requiring a Corps Section 404 Permit. It may be brought by (1) Denver Water electing to modify its proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of a Section 404 Permit. An appropriate evaluation of the No Action Alternative was made in accordance with NEPA Regulations (40 CFR 1502.14(d)) and Section 404 Regulations (33 CFR 325 Appendix B.9.b(5)(b)).The EIS compares the environmental effects of the action alternatives to those resulting from the No Action Alternative. In developing the No Action Alternative for the Moffat Project, the Corps required that Denver Water develop an alternative that did not require a Corps permit, yet did manage supply and demand to meet 15,000 AF/yr of supply. Since it is unrealistic to assume no future growth would occur and unrealistic that Denver Water would implement no changes to meet future water supply needs, the Corps consulted with Denver Water on what steps they would take to meet their water supply needs in the absence of the Moffat Project. The Corps believes the steps outlined for various restriction scenarios was a reasonable approach for developing the No Action Alternative.

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	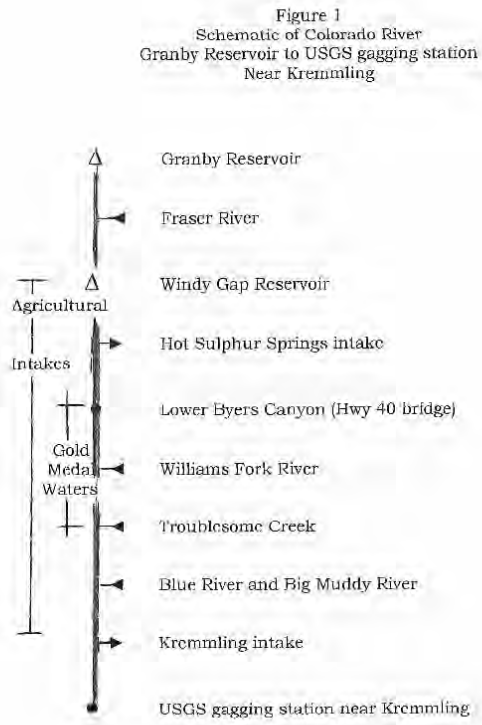	***Comment #876-3*** *(ID 1141)**:*** *Reduction of flows below Windy Gap in mid July to early October is not acceptable as flows are already too low. The health of the fish (Gold Medal waters, (fig. 1), algae blooms and agriculture intakes (fig. 1) above river levels has already occurred. Our main concerns are the cumulative effects with Windy Gap Firming Project for fish habitat, water quality, and environmental/ecological impacts Other concerns are climate variations, impacts of the forest die off due to mountain pine beetle on approximately 500,000 acres in Grand County, and sufficient monitoring for river health.* **Response #876-3:** Windy Gap Firming Project The DEIS includes the WGFP as part of the analysis because the WGFP is assumed to be on-line in the Full Use of the Existing System scenario. The Corps' analysis evaluates what time of year reductions occur, what type of reductions take place, and the magnitude of reductions; that is, reductions occur only in wet years when the system can absorb the flow changes. Additionally, the Moffat Project and WGFP would not divert West Slope water in dry years. The timing and magnitude of impacts associated with Moffat Project diversions on surface water-related resources such as water quality, aquatic biological resources, and stream morphology, are anticipated to be negligible to minor. DEIS Section 4.1.1.2 under the sub-heading Colorado River Water Quality acknowledges: "The Colorado River from the Fraser River to the Blue River is influenced by a number of East Slope entities, most notably withdrawals from the Fraser River watershed, the C-BT Project, and the Windy Gap Project." Additional water quality analysis has been performed on the Fraser River and the Three Lakes area, including potential effects from the C-BT system. Please refer to FEIS Sections 4.6.2 and 5.2

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		for a discussion of this analysis. Several efforts are currently underway to increase flows in the Colorado River below Windy Gap, such as and the 10,825 Project (refer to FEIS Section 4.5.3). Climate Change The DEIS addressed climate change in Section 5.4 and described the impacts of expected yield of the Moffat Collection System related to earlier and more concentrated spring runoff: "Many scientific studies have predicted an increase in temperatures, resulting in changes in the composition of winter precipitation and the timing of spring snowmelt. In other words, as temperatures rise the West could receive more winter precipitation in the form of rain versus snow and the snow that does accumulate would melt earlier in the spring than in past years. In Colorado, the onset of stream flows from melting snow has shifted earlier by two weeks between 1978 and 2004 and the timing of runoff is projected to shift earlier in the spring (Western Water Assessment 2008). If this were to occur, it is likely that the yield of the Moffat Collection System would decrease due to existing capacity constraints. The Moffat Collection System canals and tunnels are only capable of transporting a certain amount of water before reaching hydraulic limitations. Additionally, South Boulder Creek is only capable of transporting approximately 1,200 cfs at Pinecliffe before flooding concerns arise. If runoff were to occur in a condensed timeframe, it is likely that hydrological limitations in the Moffat Collection System could decrease Denver Water's yield. Furthermore, a condensed timeframe for runoff would likely mean a reduction in the number of days Denver Water's water rights is in priority to divert water. This could result in Denver Water building

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		additional replacement sources to ensure an adequate supply of water for its customers." Although there is valid concern in the scientific community that global climate change may affect future water supplies in Colorado, there is little quantitative or even qualitative data with which to accurately predict or portray these changes, and consequently with which to integrate reasonably predictable cumulative effects of the proposed actions. The 2008 Western Water Assessment report prepared for the CWCB, Climate Change in Colorado, indicates that, “In all parts of Colorado, no consistent long-term trends in annual precipitation have been detected. Variability is high, which makes detection of trends difficult. Climate model projections do not agree whether annual mean precipitation would increase or decrease in Colorado by 2050. The multi-model average projection shows little change in annual mean precipitation.” The 2009 USGS Circular 1331, Climate Change and Water Resources Management: A Federal Perspective, indicates that climate change has the potential to affect many sectors in which water resource managers play an active role, including water availability. The study concedes two pertinent points: 1) the best available scientific evidence based on observations from long-term monitoring networks indicates that climate change is occurring, although the effects differ regionally; and 2) climate change could affect all sectors of water resources management, since it may require changed design and operational assumptions about resource supplies, system demands or performance requirements, and operational constraints. These studies reflect general trends that there is concern regarding the effect of climate change on the proposed actions, however the absence of quantified climate-induced decreases in flows related to the proposed actions makes it impossible to evaluate the changes with more than a speculative quality. Climate change is an evolving

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		science, as such the Corps updated the FEIS (Section 4.4) with more recent technical documentation, including the joint Corps-Bureau of Reclamation planning document titled Addressing Climate Change in Long-Term Water Resources Planning and Management: User Needs for Improving Tools and Information (Brekke 2011). The concept of systematic interdisciplinary approach to cumulative effects is central to NEPA analysis, but is only defined in very general terms. Accordingly, NEPA relies on the Federal agencies to establish their own methods and procedures within the framework of the regulatory requirements. Therefore, the Corps as the lead Federal Agency of the Moffat Project EIS believes the analysis is adequate. Pine Beetle Potential long-term effects of the pine beetle are many; however, the Moffat Project does not influence or impact the pine beetle epidemic. Impacts from the pine beetle on sediment supply are unknown. DEIS Section 4.1 (FEIS Section 5.1) under the subheading Sediment Supply explains in a qualitative means how pine beetle could impact river systems. Additional water quality analysis was also performed on the Fraser River and Three Lakes related to nutrients (FEIS Sections 4.6.2 and 5.2). Information about the relationship of the Project and mountain pine beetle has been added to the vegetation analysis in the FEIS (Section 5.7). In 2010, Denver Water and the USFS announced a plan to equally share an investment of $33 million, over a five year period, for restoration projects on more than 38,000 acres of National Forest lands. Recent wildfires and the State's 3 million acres of pine beetle-infested forests have emphasized the need to protect forest health. This partnership accelerates and expands the USFS' ability to restore forest health in watersheds critical for Denver

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		Water's water supplies and infrastructure. Forest thinning and other wildfire fuels reduction projects would take place around and upstream of Denver Water reservoirs. Restoration also would help the forests become more resistant to future insect and disease, reduce wildlife risks and maintain habitat for fish and wildlife. ***Comment #876-4*** *(ID 1142)**:*** *The negotiations taking place now for the endangered fish water may help some of these issues of low flows during the summer months and should be incorporated.* **Response #876-4:** FEIS Section 4.3.1 includes a discussion of reasonable and foreseeable future actions and flow recommendations for endangered fish in the 15-mile reach. ***Comment #876-5*** *(ID 1143)**:*** *Grand County's Stream Management Plan can help identify needs for healthy fish habitats all year long and should be made part of the environmental impact statement (EIS).* **Response #876-5:** The Grand County Stream Management Plan has been reviewed and appropriate data contained therein has been incorporated into the FEIS for the following resources: water quality (Sections 3.2 and 4.6.2), geomorphology (Section 4.6.3), wetlands and riparian areas (Section 3.8), PHABSIM data for analysis of aquatic biological resources (Sections 3.11, 4.6.11, and 5.11), and recreational flows analysis (Sections 4.6.15 and 5.15). ***Comment #876-6*** *(ID 1144)**:*** *The continued coordination between the operators of the reservoirs, Northern Water Conservancy District, Denver Water, the Colorado River Water Conservation District and the Bureau of Reclamation*

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		as well as other members of the historic users pool has recently shown to be very effective and needs to be continued as part of the EIS. **Response #876-6:** The Corps notes the comment. ***Comment #876-7*** *(ID 1145)**:*** *There needs to be a comprehensive and scientific monitoring plan for the river. At any time in the future if the science proves that there is degradation to fish habitat, and/or environmental/ecological health then the environmental impact statement needs to be reopened so that these matters can be mitigated.* **Response #876-7:** FEIS Appendix M contains a Conceptual Mitigation Plan proposed by Denver Water to mitigate Project-related impacts identified in the EIS. The Corps will determine if the proposed mitigation would offset identified impacts. The final mitigation measures will be specified by the Corps as Section 404 Permit conditions, if a permit is issued. ***Comment #876-8*** *(ID 1146)**:*** *Again, thank you for this opportunity to comment. We look forward to working with all parties to find solutions to these concerns.* **Response #876-8:** The Corps notes the comment.

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Comment #906 John M. Ely, County Attorney Pitkin County Attorney's Office 530 East Main Street, Suite 302 Aspen, CO 81611-1948	PITKIN COUNTY ATTORNEY *Courthouse Annex Building* 530 East Main Street, Suite 302 Aspen, Colorado 81611-1948 Tel: (970) 920-5190 Fax: (970) 920-5198 John M. Ely, *County Attorney* Christopher G. Seldin, *Assistant County Attorney* Carrington Brown, *Code Enforcement Officer* *Legal Assistants:* Lisa MacDonald, Jane Achey RECEIVED FEB 2010 February 2, 2010 Scott Franklin Moffat Collection System Project Manager United States Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, CO 80128 RE: Moffat Collection System/DEIS Dear Mr. Franklin: Pitkin County is writing to you to join in the request from Grand County for an enlargement of time to submit comments on the above-referenced draft EIS. As made abundantly clear by Grand County, it is quite simply impossible and impractical to provide comments on the draft EIS without access to the documents referred to within the DEIS. Grand County ambitiously requests only thirty days to review these materials. Pitkin County freely admits that the number of documents involved, of unknown length and content, four hundred and three documents by the Grand County calculus, will take longer than thirty days to meaningfully review. It would appear to Pitkin County that unless it is the intent to build in error into the review process, and imperil the result of many, many hours of work, a reasonable time to review these documents after their availability must be afforded to concerned parties and citizens. Sincerely, PITKIN COUNTY ATTORNEY'S OFFICE John M. Ely County Attorney	***Comment #906-1*** *(ID 1149)**:*** *Pitkin County is writing to you to join in the request from Grand County for enlargement of time to submit comments on the above-referenced draft EIS. As made abundantly clear by Grand County, it is quite simply impossible and impractical to provide comments' on the draft EIS without access to the documents referred to within the DEIS. Grand County ambitiously requests only thirty days to review these materials. Pitkin County freely admits that the number of documents involved, of unknown length and content, four hundred and three documents by the Grand County calculus, will take longer than thirty days to meaningfully review. It would appear to Pitkin County that unless it is the intent to build in error into the review process, and imperil the result of many, many hours of work, a reasonable time to review these documents after their availability must be afforded to concerned parties and citizens.* **Response #906-1:** The following is a summary of the initial public comment period time frame and subsequent extensions. A NOA of a DEIS and Public Notice announcing the receipt and evaluation of a CWA Section 404 Permit application from Denver Water for the Moffat Project was issued on October 30, 2009, which included an initial 90-day comment period (October 30, 2009 to January 27, 2010). A second NOA was issued on December 18, 2009. During the comment period, the Corps received numerous requests to again extend the comment period on the DEIS and permit application. Based on the public's need to review additional documents referenced in the DEIS, to allow ample opportunity for the public to provide substantive comments, and to facilitate a timely and efficient review process, Omaha District Commander Colonel Robert J. Ruch determined that an additional 16-day extension was warranted and reasonable. Thus, the comment period was extended to March 17, 2010, for a combined public review period of 138 days.

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