UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
ECOSYSTEMS,
TRIBAL AND PUBLIC
AFFAIRS

March 10, 2015

Candace McKinley
Environmental Program Manager
Bureau of Reclamation
Columbia-Cascades Area Office
1917 Marsh Road
Yakima, Washington 98901-2058

Dear Ms. McKinley:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act, and the Council on Environmental Quality regulations for implementing NEPA, the US Environmental Protection Agency has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed **Kachess Drought Relief Pumping Plant and Keechelus to Kachess Conveyance Projects** (EPA Project Number: 13-0036-BOR) in Kittitas County, Washington.

The DEIS assesses potential environmental impacts associated with a proposal to construct, operate, and maintain a new deeper outlet works and pumping system in Kachess Reservoir to access up to 200,000 acre-feet of water currently inaccessible (below existing outlet elevation) in the reservoir. The project will also include a new gravity flow tunnel from Keechelus Reservoir to Kachess Reservoir to augment flows, and aquatic habitat enhancements to improve the abundance and resiliency of bull trout populations in the Kachess and Keechelus watersheds. Activities would involve construction of a pumping plant, a conveyance tunnel, reservoir outlet works, power supply facilities, and permanent access roads. There would also be fish habitat improvements and maintenance of facilities. Some activities would require vegetation clearing and grubbing, excavation and stockpiling, blasting, earthmoving and wetland filling, dredging, grading, dewatering, parking, staging and spoils disposal areas, and easements. Implementation of this project as proposed would help restore ecological functions and provide more reliable and sustainable water resources for the health of the riverine environment and for agricultural, municipal, and domestic needs. The DEIS tiers to the Yakima River Basin Integrated Water Resource Management Plan/EIS.

Analysis of impacts from the project considered six action alternatives (p. 2-2), including a No Action (Alternative 1). Differences between action alternatives relate to the location of the pumping plant and related facilities on the Kachess Reservoir (east or south shore), tunnel alignment (north or south) from the Keechelus Reservoir to Kachess dam, and cost to implement each alternative. Their overall purpose is to provide flexible water management by increasing the total water supply available (TWSA) in the Kachess Reservoir in drought years and use it to meet various water needs, including irrigation, fish, and municipal uses. The DEIS does not identify a preferred alternative.

The EPA supports Reclamation's efforts to provide more reliable and sustainable water resources for the health of the riverine environment and for agricultural, municipal, and domestic needs within the project

area. We note with appreciation that the DEIS addresses many of the issues we raised during the project scoping period in December 2013, including analysis of cumulative and climate change effects; and Reclamation engaged other resource management agencies and tribes in this project analysis. The DEIS includes a good description of resources within the project area, analysis of anticipated environmental impacts, and commitments to reduce or avoid adverse impacts that could result from the proposed project activities.

Overall, we believe the work to access currently unavailable water in the Kachess Reservoir is important, but it should be done with minimal impacts to the existing reservoir environment and vicinity. Refilling Kachess Reservoir with water from Keechelus Reservoir following a drought or because of climate change would be beneficial for water quantity needs, but the action has potential to generate adverse impacts to a variety of resources at both reservoir sites. In particular, the Kachess Reservoir area would be most impacted due to the combined effects of planned activities at the reservoir itself and Keechelus Reservoir inflow. Water quality within the Kachess Reservoir and River, for example, could further be degraded due to introduction of contaminants (e.g., polychlorinated biphenyls (PCBs), sediments, and diseases and exotic species from the Keechelus inflow).

Of the proposed action alternatives, therefore, we would support selection of alternative 2B for the Kachess Drought Relief Pumping Plant component and 3A for the Keechelus to Kachess Conveyance component. Alternative 2B would require fewer disturbances (42 acres), shorter new access roads (690 ft.), a smaller intake distance from the existing dam (3,200 ft.), no pipeline, and would be cheaper to implement ($380.71 million) compared to Alternative 2A. Similarly, Alternative 3A would require a shorter tunnel length (4 miles), no new permanent access roads, few portals with no use of the I-90 Exit 62 area, and be less costly to implement ($221.32 million) than Alternative 3B.

We do have some concerns about potential impacts to water quality, wetlands, riparian areas, and habitat as discussed in our attached detailed comments. We recommend continued work with Washington State Department of Ecology and affected tribes to assure wise use and protection of water resources in the analysis area as the proposals are implemented. To protect fish in the reservoirs and streams in the project area, including species that are listed as endangered and threatened, we recommend continued coordination with the US Fish and Wildlife Service, National Marine Fisheries Service, and Washington State Department of Fish and Wildlife as appropriate to define water management practices that would be protective of fish and other species within waterbodies in the project area, especially those that are water quality limited. The final EIS should include any additional, relevant information developed as a result of coordination with those agencies (e.g., outcomes of the Memorandum of Understanding with the agencies and the Yakama Nation to implement the bull trout enhancement component of this project).

Based on our review and concerns about water quality and unclear or missing information, we have assigned a rating of EC-2 (Environmental Concerns – Insufficient Information) to the DEIS. For your reference, a copy of the rating system used in conducting our review is enclosed.

Thank you for the opportunity to review and comment on this DEIS. If you have questions about our comments, please contact me at (206) 553-1601 or by electronic mail at reichgott.christine@epa.gov or contact Theo Mbabaliye of my staff at (206) 553-6322 or by electronic mail at mbabaliye.theogene@epa.gov.

Sincerely,

Christine B. Reichgott

Christine B. Reichgott, Manager
Environmental Review and Sediment Management Unit

Enclosures:

1. EPA Detailed Comments on the Kachess Drought Relief Pumping Plant and Keechelus Reservoir-to Kachess Reservoir Conveyance
2. U.S. Environmental Protection Agency Rating System For Draft Environmental Impact Statements

cc: Washington State Department of Ecology

EPA Detailed Comments on the DEIS for
Kachess Drought Relief Pumping Plant and
Keechelus Reservoir-to-Kachess Reservoir Conveyance
Kittitas County, WA

Surface water quality impacts and wetlands

The DEIS identifies impaired waters in the project area and provides information about the status of applicable Total Maximum Daily Loads (TMDLs) (p. 3-31). We note that the Keechelus Reservoir is on Washington State's 303(d) list for temperature, dioxins and PCBs and the Kachess River, which is an outflow of the Kachess Reservoir is on the list due to dissolved oxygen impairment. More recent data showed that the Kachess River exceeded surface water temperature criteria as well. One tributary to the Keechelus Reservoir (Meadow creek) is also impaired due primarily to temperature, while the Yakima River at different sections has been listed for a variety of parameters, including temperature, pH, dissolved oxygen, PCBs, chlordane, dioxin, dieldrin, ammonia-N, bacteria, and 4,4′-DDT and 4,4′-DDE (p. 3-31).

Although the Kachess Reservoir is not listed on Washington State's 303(d) list for any water quality impairments, the reservoir experiences summer temperatures that exceed the state standard, with a peak of 21.3°C (over 70° F) recorded in August 2012 at depths of 1 and 3 meters (3.3 and 9.8 feet). Other limiting water quality parameters for the reservoir include dissolved oxygen and PCBs. One tributary to the Kachess Reservoir has also been listed on the state's 303(d) list due to exceedance of the temperature criteria. Both Kachess and Keechelus Reservoirs are classified as oligotrophic (nutrient-poor and oxygen rich). Under the Keechelus to Kachess Conveyance proposal, water would be transferred to Kachess Reservoir from Keechelus Reservoir. Therefore, contaminants in Keechelus Reservoir, such as PCBs, could be discharged into the Kachess Reservoir further degrading water quality in this water body and in waterways downstream. In drought years, low dissolved oxygen and high temperatures could also be a problem in these waters (p. 4-58).

Water quality within the reservoirs and streams may be adversely affected if the project construction activities, including blasting, surface grading, excavation, and surface pavement alter the hydrology of springs and surface runoff, such that erosion carries sediment to surface waters, and pollutants to local drainages and the underlying aquifer. In addition, groundwater extraction, land disturbance, material storage, waste disposal, inadvertent chemical or hazardous liquid spills, and compaction produced by vehicular traffic can all affect recharge to the local aquifer and groundwater quality. The DEIS indicates, for example, that operation of Alternatives 2A, 2B, and 4 may lower groundwater levels in adjacent aquifers and potentially decrease water supply to wetlands, springs, or rivers and interrupt well operations (p. 4-82).

Adverse impacts to shorelines and wetlands in the area from the project may result in habitat loss, establishment of invasive species, and water quality impairment. The DEIS indicates that construction activities under Alternative 2A would disturb or remove riparian vegetation adjacent to Kachess Reservoir, resulting in clearance of up to 65 acres, nine of which would be permanent (p.4-110). Because shoreline vegetation contributes to habitat complexity by providing cover for resident fish and prey species, loss of complexity may reduce the productivity for some resident fish species, including littoral species such as cutthroat, rainbow, and eastern brook trout. The DEIS also indicates that operations under all action alternatives would affect wetland and vegetation assemblages around the

Kachess Reservoir because of prolonged drawdowns of the reservoir during drought years, which could substantially change the composition of wetland communities around the reservoir and increase the likelihood of invasive species establishment (p. 4-136). There are 48 acres of palustrine wetlands on the Kachess Reservoir shoreline, which would experience prolonged periods of dry conditions during drawdown (drought years and the 2-5 years following a drought). Although wetland and shoreline vegetation responses to prolonged reservoir drawdowns may be variable, it is possible that some wetland plant communities could be lost and others could shift from wetland to upland vegetation communities (p. 4-143). Species that favor variable inundated conditions would also more likely adapt to changes in inundation levels at the Kachess Reservoir, whereas species requiring drier conditions may experience mortality during prolonged inundation (p.4-151). Loss of this vegetation could increase the erosion rate of the reservoir shoreline area, resulting in sediment discharge and increased nutrient loading from decaying vegetation. We are also concerned about cumulative impacts of erosion in the vicinity of the analysis area, which may exacerbate sediment and nutrient loading in the reservoirs and downstream waterways. For example, forestry activities such as logging and road building, and conditions of the forested landscape, such as fire and undersized or damaged culverts may significantly increase sediment loads.

Because of these concerns, we recommend that the final EIS include the following:

- *Discussion of cumulative impacts to water quality within the reservoirs and downstream waterways from erosion that may occur as a result of land use activities in the vicinity of the analysis area.*
- *Updated information on the National Pollutant Discharge Elimination System permit application process and measures to protect water quality.*
- *Updated information on the status of Clean Water Act Section 401 and 404 permit application processes and conditions to assure the project would protect riparian resources and meet state water quality standards.*

Earth resources impacts

The DEIS discusses earth resources in the analysis area (p. 3-2) and explains how the resources would be impacted by project activities (p. 4-5). The DEIS indicates that construction activities under Alternative 2A would expose bare ground (up to 75 acres) through clearing and grading. Movement of large construction equipment over bare ground could subject soils to high erosion potential, especially if bare ground is exposed during rainy seasons when surface water could mobilize sediment.

Proposed facilities could be at risk of disruption as a result of seismic activity or landslides in the area. The DEIS states that while the Straight Creek Fault is not presently active, it does pass through the Kachess Reservoir and Yakima River Valley, and there are other fault sources that could potentially cause ground shaking within the study area. Loose sandy soils and soils saturated with water such as those along lakeshores and in river valleys would be particularly vulnerable to displacement.

While we recognize that some erosion control best management practices will be used (p. 4-16), we are concerned that excessive soil erosion in some areas could eventually lead to damage of construction improvements or instability of exposed slopes, particularly with lowering of reservoir levels under Alternatives 2A and 2B. Additional information about soils and geology would be valuable to ensure that appropriate controls are in place. We recommend that the final EIS include the following:

- *Soil details that include water, wind erosion and restoration potential (low, moderate, or high). The Natural Resources Conservation Service may be a good source for such data; their Web Soil Survey[1] covers Yakima and Kittitas counties.*
- *Liquefaction susceptibility maps depicting the relative hazard in terms of low, moderate, and high liquefaction susceptibility. The Washington Division of Geology and Earth Resources (WDGER)[2] maintains data on existing geology and geologic hazards in the state of Washington and may be a good data source on current surface geology, landslides, faults, and ground response including liquefaction susceptibility.*
- *Results of additional site-specific geotechnical studies to identify subsurface issues, unstable slopes, and other local factors that could contribute to slope instability and increase erosion potential, and how project activities will be modified to reduce risks.*
- *Recommended best practices for Seismic Design of Substations[3] developed by the Institute of Electrical and Electronics Engineers and approved by the American National Standards Institute.*

Impacts of Climate Change

The DEIS discusses emissions of greenhouse gases (GHGs) from the proposed project and the potential effects of climate change on the project (p. 3-114; 4-216; 4-226). Thank you for data provided to support the discussion, especially for effects on water resources. We note that the DEIS states that climate change would have a direct impact on water temperature and, indirectly, on dissolved oxygen (p. 3-124). Specifically, in the upper Yakima River where proposed facilities would be located, climate change models predict water temperatures would exceed 21°C in the future, which would decrease dissolved oxygen levels in the area's waterbodies. Because of potential climate change impacts to water temperature and dissolved oxygen in waterbodies found within the analysis area, including Kachess and Keechelus Reservoirs, we recommend:

- *The FEIS identify measures to monitor potential temperature exceedances and low dissolved oxygen that may occur in waterways within the project area as a result of climate change. This is especially important for this project because dissolved oxygen and temperature are among contaminants of concern in some of those waters that they are on the state's most current 303(d) list (p. 3-31).*
- *Reclamation consider approaches for climate impact assessment outlined in the Council on Environmental Quality's recent "Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts,"[4] and include relevant information in the FEIS.*
- *Implementing practicable mitigation opportunities for reducing GHGs during the construction and operation of the project, including using energy efficient equipment and limiting idling when possible.*

[1] http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
[2] http://www.dnr.wa.gov/ResearchScience/Topics/GeosciencesData/Pages/gis_data.aspx
[3] http://standards.ieee.org/develop/wg/WGF1.html
[4] http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance

Vegetation and Wildlife Impacts
The DEIS indicates that the proposed project would result in adverse impacts to vegetation due primarily to construction activities and related loss of species and habitat (p. 4-137). Overall, the project would result in permanent loss of up to 18 acres, and in temporary impacts to about 57 acres. Most of this acreage involves stands of second-growth coniferous forest and patches of riparian vegetation near the Kachess River discharge. A 4.5-acre stand of mature coniferous and deciduous forest located south of the Kachess dam would be impacted by construction activities. Increased reservoir pool levels and drawdowns would also impact wetlands, causing shifts in wetland vegetation composition and displacement of some animal species, including small mammals and interior forest songbirds (e.g., chickadees, kinglets, and woodpeckers, all of which are protected under the Migratory Bird Treaty Act) (p. 4-162).

These impacts would result from construction activities at the reservoir, use of the reservoir, access roads, recreational developments, and shoreline protection activities. Loss of vegetation and wetlands would affect nearly 89 acres of wildlife habitat under Alternative 4, causing some species to relocate due to construction activities and others to lose foraging habitat or nesting sites. Among species affected would be the northern spotted owl, which is a federally threatened species with critical habitat in the analysis area (p. 3-89). Wildlife would also be affected due to increased noise and traffic during construction and maintenance of the reservoir. While we note that some of the impacts would be temporary and indirect, others would be direct, permanent, cumulative and unavoidable.

Because of potential adverse impacts to federal and state species of concern, including endangered and threatened fish in the project area and vicinity, we recommend that the final EIS include the following:

- *Outcomes of ongoing work with the US Fish and Wildlife Service and National Marine Fisheries Service, including recommended measures to reduce risks to species and protect biota and habitat within the analysis area and vicinity. Similarly, a discussion on work with Washington State Department of Fish and Wildlife will also be important.*
- *Information about plans for control of aquatic weeds in the reservoirs.*

U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.