Appendix M

Traffic Management Plan

AIYA SOLAR PROJECT

TRAFFIC PLAN

1.0 PROJECT INFORMATION

1.1. Background

Aiya Solar Project, LLC (Aiya Solar or Applicant), a wholly owned subsidiary of First Solar, Inc., has entered into an agreement with the Moapa Band of Paiute Indians (Tribe) to lease land, up to 30 years, on the Moapa River Indian Reservation (Reservation) for the purposes of constructing, operating, and maintaining the Aiya Solar Project, a 100 megawatt (MW) solar generating facility using photovoltaic (PV) technology and associated infrastructure (the Proposed Project or Project). .

The proposed solar generating facility would be constructed on up to 900 acres of tribal trust land within the Reservation. The Project infrastructure would include a 230 kilovolt (kV) electric transmission generation interconnection (gen-tie) line and a temporary water pipeline. Access to the solar facility would be directly from State Highway 168 that crosses the solar site on the Reservation.

1.2. Location

The Proposed Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1). The Proposed Project site is accessible from Exit 90 on I-15. Traffic would exit I-15 and travel approximately 4 miles northwest on State Highway 168 until reaching the solar site which would be located on both sides of the highway. There is currently little traffic on any of the roads in the immediate vicinity of the project.

Two very short access roads would be constructed for the Project and both would be off of Highway 168. One would be approximately 100 feet in length to connect the southern portion of the solar site with State Highway 168. The second access road would connect the portion of the solar site located north of Highway 168 to the highway.

Secondary access roads (intended primarily for emergency access) approximately 200-feet in length would be built in two locations to provide access to the respective arrays north and south of Highway 168. On the north side of Highway 168, the entrance for secondary access would be located further west along Highway 168 than the proposed primary access location. The secondary access road for the array south of Highway 168 would be located at the easternmost boundary of the southern array.

Within the site, a new perimeter road would be located just inside the site's perimeter fence and within the solar field area around specific blocks of equipment to allow access by maintenance and security personnel. Within the solar field, access ways would be built to provide vehicle access to the solar equipment.

1.3. Scope of Work and Schedule

The Proposed Project is anticipated to begin construction in Fall of 2015. Construction is expected to take approximately 12 to 15 months and would include the major phases of mobilization, grading and site preparation, installation of drainage and erosion controls, PV panel/tracker assembly, and solar field construction.

1.4. Purpose of the Traffic and Parking Management Plan

This Traffic and Parking Management Plan (TPMP) outlines steps to minimize the impacts and delays to traffic associated with the Proposed Project. The TPMP describes the measures that may be used to address any traffic and parking impacts identified.

1.5. Existing Transportation Facilities

I-15 provides access to the Proposed Project area from the urban area of Las Vegas to the south and Mesquite, Nevada and Salt Lake City, Utah to the north. State Highway 168 provides east-west access between I-15 and US 93 and crosses the proposed solar site. In addition to the roads in the area, the Union Pacific Railroad runs north-south within approximately 0.5 miles from the proposed solar site.

Table 1-1 provides a summary of the primary roads and transportation corridors in the Project area. **Table 1-2** provides more detailed information on the transportation routes and annual average daily traffic volumes (AADT) in the vicinity of the Proposed Project.

TABLE 1-1
ROUTES PROVIDING DIRECT OR INDIRECT ACCESS TO THE PROPOSED PROJECT

Route	Direction	Type	Lanes	Description
I-15	north-south	Paved Interstate Freeway	2 (each direction)	Provides a connection between Las Vegas, NV and Salt Lake City, UT. Provides direct access to Proposed Project via SH 168
US-93	east-west	Paved Principal Arterial	1 (each direction)	US 93 is a major highway traversing the eastern edge of the state.
SH 168	east-west	Rural Major Collector	1 (each direction)	SH 168 provides access between I-15 at Exit 90 and US 93. It is a two land undivided road. Also known as the Glendale-Moapa Valley Road
Reservation Road	north-south	Rural Minor Collector	1 (each direction)	Reservation Road provides access between SH 168 and Lincoln Street in the Moapa community. It is a two land undivided road that would traverse the proposed project.
Union Pacific Railroad	north-south	Railroad	1 track	Provides connection between Salt Lake City and Los Angeles

TABLE 1-2 AADT SUMMARY NEAR THE PROPOSEDPROJECT	
Location	**AADT**
I-15,Southbound On Ramp at Moapa Interchange (Exit 90)	500
I-15,Northbound Off Ramp at Moapa Interchange (Exit 90)	450
I-15 Segment Between Exit 90 and Exit 91	17,000
SH 168, 6.7 Miles East of US-93	200
SH 168, 0.2 Miles West of the Frontage Rd at Exit 90	1,900
US 93 168, 6 Miles North of US-93/I-15 Interchange (Exit 64)	2,300
Reservation Road, .5 Miles South of SH 168	300

Source: NDOT Traffic Records Information Access data, 2013

2.0 TRAFFIC IMPACTS

2.1. Major Transportation Routes

2.1.1. Construction Phase

The roadways listed in **Table 1-1** are anticipated to be impacted by the Proposed Project. The impacts to these roadways could include increased wear on the road from the construction loads, increased traffic volumes during construction, and potential delays during the construction peak periods.

Increased traffic volumes for the construction personnel and the material deliveries will impact traffic flows throughout the duration of the 12 to 15 month project construction period. The on-site construction workforce would consist of project and site management, laborers, skilled craft, and startup personnel. The number of workers expected on the site during construction of the Project would vary over the construction period and is expected to average up to approximately 400 to 600 each day, with a peak not expected to exceed 1,200 workers at any given time, generating about 2,400 daily round trips. To account for the variability during peak periods, a conservative estimate assuming no carpooling was used. Deliveries of equipment and supplies to the site would also vary over the construction period but are expected to average about 100 daily round trips. Construction equipment would typically include augers, bulldozers, various trucks, trailers, tractors, and cranes. All project related parking will be onsite during construction.

Construction will generally occur between 5:00 a.m. and 5:00 p.m. and could occur up to seven days a week. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier (e.g., at 3:00 am) to avoid work during high ambient temperatures. Work shifts could be staggered in 20 minute intervals as much as practical to reduce traffic impacts along State Highway 168 and at the intersection with Reservation Road.

The Proposed Project will increase traffic on I-15 and State Highway 168 by a maximum of 2,500 vehicle trips daily. The intersection of State Highway 168 and Reservation Road could also experience increased traffic from the Proposed Project.

2.1.2. Operations Phase

When the site becomes operational, it is anticipated that the Project operational staff of 15 personnel would generate up to an additional 30 trips per day (15 entering in the morning and 15 departing in the evening) with very few heavy vehicles. The site is anticipated to be operational for 30 years.

The existing roadways have very low traffic volumes with limited forecasted growth. The roadways and intersections are projected to mostly unaffected during the operations phase.

3.0 TRAFFIC CONTROL SCENARIOS

Traffic Control would be used during the construction of the Project access points on Highway 168. This could include temporary closures of one lane on Highway 168 with flaggers regulating the traffic flows one direction at a time. Traffic control shall meet the requirements in the Manual of Uniform Traffic Control Devices (MUTCD).

The delays to the traffic would not be expected to last more than 5 minutes. All roadways would accommodate two-way traffic at the end of work hours during construction of the access points.

After site access is in place, two-way traffic would be maintained on Highway 168 for the duration of construction and through operation. Emergency personnel will be allowed access through the construction site at all times.

The Proposed Project does not anticipate needing to make improvements to the existing transportation facilities as the as the increased traffic would occur only during the relatively short construction period.

4.0 MITIGATION OF TRAFFIC IMPACTS – BEST MANAGEMENT PRACTICES

The traffic impacts identified in the previous sections could cause delays to travelers in the Proposed Project vicinity. This section describes potential measures which could be used to reduce any delay caused by the Proposed Project.

4.1. Motorist Information and Construction Area Signs

Informing the road users is one way to help reduce the impacts from construction. Drivers would be informed about the construction and any major delays and/or detours, allowing them to modify their travel choices. Both static and variable message signs (VMS) can be used to inform users coming from each direction that there could be delays due to construction of the access points. This appropriate signage would be placed on State Highway 168 on both ends approaching the project site.

4.2. Construction Staging

To mitigate any traffic impacts attributable to the construction workforce during the project, construction start times could be staggered during peak times such that the entire workforce required for each day could arrive/leave at different times. This could be done by staggering workers by construction areas (for example, arrays north of the highway versus those south of the highway).

4.3. Carpooling

While not expected, if needed, carpooling could be used during peak construction periods to reduce the total number of trips entering/leaving the site, and in turn, reduce any traffic congestion. The construction manager can coordinate with the workforce to determine the best location and time to coordinate carpooling if needed. Another possible option would be to organize a shuttle that could take the workers from a centralized point such as the Moapa Travel Plaza to the site.

4.4. Public Information and the Media

Updates to the local communities through radio, the internet, or local newspaper could provide information to the current local users of Highway 168 who could be impacted by construction of the Proposed Project. Radio announcements can be made on the local stations. A project website or a social media page can be set up for the project to allow individuals to subscribe to daily updates. Newspaper bulletins could also provide information on the upcoming work and areas of impact to local users.

Stakeholders such as NDOT, Clark County, and the Moapa Community would be informed with outreach letters prior to construction. The letter will provide a description of the project and the time frame as well as outline any short-term restrictions that may impact the stakeholders. The letters will also provide contact information for any stakeholders who may have questions.

4.5. Off-Peak Hour Activities

To minimize adding trips during the daily workforce commute, deliveries would attempt to be scheduled during the off-peak hours as feasible.

5.0 POTENTIAL ADVERSE EFFECTS TO THE PUBLIC

5.1 Bicycles and Pedestrians

Bicycles and pedestrians are rare in the vicinity of the Proposed Project but could occasionally be present. The existing routes would accommodate bicycles or pedestrians during construction similarly as the current condition.

5.2 Delivery and Service Vehicles

I-15 serves commercial trucking and delivery and service vehicles traveling between Las Vegas and Salt Lake City. The Proposed Project may cause increased traffic volumes on I-15 (and at exit 90) and on State Highway 168, but delays are not expected. If delays were to occur, they would be expected to have a minor effect on delivery and service vehicles.

5.1.3. Emergency Services

Emergency vehicles dispatched through 911 services for ambulance, sheriff, State Highway Patrol, and the local Fire Departments use the routes within the Project vicinity. Clark County Fire Department has an agreement with the Tribe to provide fire protection and emergency medical services to the Reservation. Emergency services will not be interrupted by the proposed project. The Clark County Fire Department will be kept informed of the progress of construction at the site.

6. CONCLUSION

The construction of the Proposed Project may have impacts on the existing transportation networks by increasing the volumes during the 12 to 15 month construction period. Increased traffic during operations would be minimal.

The traffic volumes during construction will increase along I-15, the ramps at Exit 90, State Highway 168, and for a short time possibly at Reservation Road. Potential mitigation measures have been described in Section 4.

Appendix N

Comments on DEIS / Responses

Appendix N

Comments on DEIS / Responses

Aiya Solar Project

Draft Environmental Impact Statement

COMMENT REPORT

Prepared for:

Bureau of Indian Affairs
Western Regional Office
2600 North Central Avenue
Phoenix, AZ 85004

and

Bureau of Indian Affairs
Southern Paiute Agency
P.O. Box 720
St. George, UT 84771

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INTRODUCTION

The purpose of the Proposed Project is to construct a 100 megawatt (MW) solar electric generation facility, and associated infrastructure on the Moapa Indian Reservation (Reservation), and obtain a right-of-way (ROW) grant on BLM lands for a 230 kV transmission line and associated access roads. The primary need for the Proposed Project is to provide land lease income, sustainable renewable resources, new jobs and other benefits for the Tribe by using solar resources on Reservation lands where there is exposure to high levels of solar radiation. A secondary need for the Proposed Project is to assist utilities in meeting their renewable energy goals by providing electricity generated from solar resources from Tribal lands that may be efficiently connected to the transmission lines in a manner that minimizes adverse site impacts.

The proposed Federal action, taken under 25 U.S.C. 415, is the BIA approval of a solar energy ground lease for approximately 900 acres and associated agreements entered into by the Tribe with Aiya Solar Project LLC, for the construction and operation of a 100 megawatt (MW) solar project using photovoltaic (PV) technology. The solar project would be located entirely on the Reservation. A short transmission line associated with the Project will be located on Federal lands administered and managed by the BLM.

The EIS will provide a framework for the BIA and the BLM to make determinations and take their respective federal actions. The federal action for the BIA would be to approve or deny a lease and any associated ROW on tribal lands for the proposed solar facility, and for the BLM to approve or deny grants of ROW for the proposed transmission line.

The purpose of this report is to describe the various methods for soliciting and receiving public input on the DEIS and to present a summary of the comments received along with responses to those comments. All comments that are substantive and within the scope of the agencies' decisions are addressed in the Final EIS.

All comments are given equal consideration, regardless of the method of their transmittal.

SOLICITATION OF COMMENTS ON THE DRAFT EIS

During the public comment period, the BIA solicited comments on the Aiya Solar Project DEIS from the public, landowners, Government agencies, tribes and interested stakeholders by informing them about the availability of the Draft EIS and also announcing the scheduled public meetings.

The Draft EIS and public meetings were publicized in the *Federal Register*, in letters mailed to interested stakeholders, through public notices published in local newspapers, on the project website http://www.AiyaSolarProjectEIS.com/). These outreach and notification activities are described in more detail in the following subsections.

FEDERAL REGISTER

The public comment period officially began with the publication of the Notice of Availability (NOA) in the Federal Register on May 15, 2015. The NOA announced that the DEIS was available for public review, described the project, announced the time and locations for public meetings, identified locations whether the Draft EIS was available for review, and outlined the ways to provide comments on the Draft EIS. The NOA can be found in **Appendix A**.

PROJECT WEBSITE

A project website is available for access by anyone at any time during the EIS process. The Draft EIS was made available on this website and the site also provides a mechanism for submitting comments. In addition, an announcement for extending the comment period on the Draft EIS was also posted on this site. The website will remain active for the duration of the EIS process and can be accessed at http://www.AiyaSolarProjectEIS.com/

NOTIFICATION LETTERS

Notification letters were sent by the BIA to Government agencies, various non-Governmental organizations and other interested stakeholders. The letters briefly explained the project, announced the availability of the DEIS, identified the Federal review process, announced the public meetings, and described the various ways to provide comments. Over 100 notification letters were mailed on May 14, 2015. The notification letter can be found in **Appendix B**.

NEWSPAPER ADVERTISEMENTS

A public notice announcing the availability for the DEIS and the public meetings was published in three local newspapers on May 20, 2015. The publications included: Las Vegas Review Journal, Las Vegas Sun and Moapa Valley Progress. Copies of the published public notice are in **Appendix B**.

PUBLIC MEETINGS

The BIA and BLM hosted public meetings in Moapa Town on the reservation and in Las Vegas at the BLM office to discuss and gather public comments on the Draft EIS. The two public meetings were held at the times and locations listed below:

Meeting Date and Time	City/State	Address	Attendance
June 17, 2015 5:30PM to 7:30PM	Moapa Town, NV	Moapa River Indian Reservation Tribal Hall, One Lincoln Street	16
June 18, 2015 5:30PM to 7:30PM	Las Vegas, NV	BLM Conference Room, Southern Nevada District Office, 4701 North Torrey Pines Drive	12
TOTAL ATTENDANCE			28

The public meetings were a combination of open house and formal presentation. Attendees were greeted at the entrance and asked to sign in. Handouts were available for the public and posters were on display that described the Proposed Action, Alternatives and how to participate. Attendees were able to ask questions to the agency and project representatives while viewing posters. This was followed by a formal presentation recorded by a stenographer.

HAND-OUTS

The following handouts were available at the public meetings:

- Public notification letter
- Comment form

The handouts available at meetings can be found in **Appendix C**.

PRESENTATION

At 5:30PM, a formal presentation commenced, followed by an open house format. Both public meetings followed the same agenda. Mr. Chip Lewis began the presentation and explained the various ways to provide comments on the Draft EIS, the purpose of the public meeting and the NEPA process.

Mr. Randy Schroeder of the EIS consultant team then presented an overview of the Draft EIS, proposed action and alternatives as well as the environmental issues addressed. Following the presentation, the attendees were invited to provide verbal comments or ask questions about the Draft EIS. A court reporter was present at both meetings to record transcripts of the presentations and public comments expressed.

INFORMATION STATIONS

Both public meetings included display boards presented at information stations. These boards showed the EIS process/schedule, proposed project area, primary impact differences by alternative and photovoltaic technology.

METHODS FOR SUBMITTING COMMENTS

The BIA encouraged interested parties to submit comments through a variety of methods:

- Individual letters could be hand delivered or mailed via the U.S. Postal Service to Mr. Chip Lewis, Acting Regional Environmental Protection Officer, BIA Western Regional Office Branch of Environmental Quality Services, 2600 North Center Avenue, 4th Floor Mail Room, Phoenix, AZ 85004-3008.

- Comments could be submitted via "submit comment" tab on the project website at http://www.AiyaSolarProjectEIS.com/

- Comments could be provided via email, phone or fax to either Mr. Chip Lewis, Acting Regional Environmental Protection Officer, telephone: (602) 379-6782; fax (602) 379-3833; email: chip.lewis@bia.gov.

- Comments could be provided at the public meetings either orally or by filling out a comment form provided at the meetings (that could be handed in at the meeting or mailed in at a later date).

COMMENTS RECEIVED

COMMENTS RECEIVED

The comment period began on May 15, 2015 when the NOA was published in the *Federal Register* and closed on June 29, 2015. In addition to comments received at the two public meetings, there were 7 comment letters/forms received through a variety of means (see "Methods for Submitting Comments" for more details). All comments were reviewed and coded. Copies of all comments and their coding are contained in **Appendix D**.

RESPONSES TO COMMENTS

A comment/response matrix (Responses to Comments on the Draft EIS) is contained in **Appendix E**. A total of 7 comment letters were received. Each letter received is identified by the name, affiliation, and address of the commentor and each specific comment within each document was summarized. A response was prepared for each comment and the specific location (chapter and section number) of any required change in the Final EIS was listed.

All comments were given equal weight.

APPENDIX A – NOTICE OF AVAILABILITY AND FEDERAL REGISTER NOTICES

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[156A2100DD/AAKC001030/A0A501010.999900 253G]

Draft Environmental Impact Statement for the Proposed Aiya Solar Project, Clark County, Nevada

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice of Availability.

SUMMARY: In accordance with the National Environmental Policy Act (NEPA), the Bureau of Indian Affairs (BIA), as the lead Federal agency, with the Bureau of Land Management (BLM), the Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), and the Moapa Band of Paiute Indians (Tribe) as Cooperating Agencies, has prepared a draft environmental impact statement (DEIS) for the proposed Aiya Solar Project on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada. This notice announces that the DEIS is now available for public review and that BIA will hold public meetings to solicit comments on the DEIS.

DATES: The date and locations of the public meetings will be announced at least 15 days in advance through notices in the following local newspapers: Las Vegas Sun, Las Vegas Review Journal and the Moapa Valley Progress and on the following Web site: *www.AiyaSolarProjectEIS.com.* In order to be fully considered, written comments on the DEIS must arrive no later than 45 days after EPA publishes its Notice of Availability in the **Federal Register**.

ADDRESSES: You may mail, email, hand deliver or telefax written comments to Mr. Chip Lewis, Acting Regional Environmental Protection Officer, BIA Western Regional Office, Branch of Environmental Quality Services, 2600 North Central Avenue, 4th Floor Mail Room, Phoenix, Arizona 85004–3008; fax (602) 379–3833; email: *chip.lewis@bia.gov.* The DEIS will be available for review at: BIA Western Regional Office, 2600 North Central Avenue, 12th Floor, Suite 210, Phoenix, Arizona; BIA Southern Paiute Agency, 180 North 200 East, Suite 111, St. George, Utah; and the BLM Southern Nevada District Office, 4701 N. Torrey Pines Drive, Las Vegas, Nevada. The DEIS is also available on line at: *www.AiyaSolarProjectEIS.com.*

To obtain a compact disk copy of the DEIS, please provide your name and address in writing or by voicemail to Mr. Chip Lewis or Mr. Garry Cantley. Their contact information is listed in the **FOR FURTHER INFORMATION CONTACT** section of this notice. Individual paper copies of the DEIS will be provided only upon request.

FOR FURTHER INFORMATION CONTACT: Mr. Chip Lewis, BIA Western Regional Office, Branch of Environmental Quality Services, 2600 North Central Avenue, Phoenix, Arizona 85004–3008, telephone (602) 379–6782; or Mr. Garry Cantley at (602) 379–6750.

SUPPLEMENTARY INFORMATION: The proposed Federal action, taken under 25 U.S.C. 415, is BIA's approval of a solar energy ground lease and associated agreements entered into by the Tribe with Aiya Solar Project, LLC (Aiya Solar or Applicant), a wholly owned subsidiary of First Solar, Inc. (First Solar), to provide for construction and operation of an up-to 100 megawatt (MW) alternating current solar photovoltaic (PV) electricity generation facility located entirely on the Reservation and specifically on lands held in trust by BIA for the Tribe. The proposed 230 kilovolt (kV) generation-tie transmission line required for interconnection would be located on Tribal lands, private lands and Federal lands administered and managed by BLM. The Applicant has accordingly requested that BIA and BLM additionally approve right-of-ways (ROWs) authorizing the construction and operation of the transmission line. Together, the proposed solar energy facility, transmission line, and other associated facilities make up the proposed Aiya Solar Project (Project).

The Project would be located in Township 14 South, Range 66 East, Sections 29, 30, 31, and 32 Mount Diablo Meridian, Nevada. The generation facility would generate electricity using PV panels. Also included would be inverters, a collection system, an on-site substation to step-up the voltage to transmission level voltage at 230 kV, an operations and maintenance building, and other related facilities. A single overhead 230 kV generation-tie transmission line, approximately 1.5 to 3 miles long, would connect the solar project to NV Energy's Reid-Gardner 230kV substation through a point northeast of the existing Reid-Gardner substation where a new NV Energy collector station would be built in the future.

Construction of the Project is expected to take approximately 12 to 15 months. The Applicant is expected to operate the energy facility for 30 years, with two options to renew the lease for an additional 10 years, if mutually acceptable to the Tribe and Applicant. During construction, the PV panels will be placed on top of fixed-tilt and/or single-axis tracking mounting systems that are set on steel posts embedded in the ground. Other foundation design techniques may be used depending on the site topography and conditions. No water will be used to generate electricity during operations. Water will be needed during construction for dust control and a minimal amount will be needed during operations for landscape irrigation and administrative and sanitary water use on site. The water supply required for construction of the Project would be leased from the Tribe and would be provided via a new temporary intake installed in the Muddy River and a new temporary above-ground pipeline approximately two miles in length. Operational water would be provided through a tap into an existing water pipeline that crosses the solar site. Access to the Project will be provided via State Highway 168.

The purposes of the Project are to: (1) Provide a long-term, diverse, and viable economic revenue base and job opportunities for the Tribe; (2) help Nevada and neighboring states to meet their state renewable energy needs; and (3) allow the Tribe, in partnership with the Applicant, to optimize the use of the lease site while maximizing the potential economic benefit to the Tribe.

The BIA and BLM will use the EIS to make decisions on the land lease and ROW applications under their respective jurisdiction. The EPA may use the document to make decisions under its authorities. The Tribe may use the EIS to make decisions under its Tribal Environmental Policy Ordinance. The USFWS may use the EIS to support its decision under the Endangered Species Act.

Directions for Submitting Comments: Please include your name, return address and the caption: ''DEIS Comments, Proposed Aiya Solar Project'', on the first page of your written comments.

Public Comment Availability: Written comments, including names and addresses of respondents will be available for public review at the BIA mailing addresses shown in the **ADDRESSES** section during regular business hours, 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. Before including your address, telephone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal

identifying information from public review, we cannot guarantee that we will be able to do so.

Authority: This notice is published in accordance with section 1503.1 of the Council on Environmental Quality regulations (40 CFR part 1500 *et seq.*) and the Department of the Interior Regulations (43 CFR part 46) implementing the procedural requirements of the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), and in accordance with the exercise of authority delegated to the Assistant Secretary—Indian Affairs by part 209 of the Department Manual.

Dated: May 1, 2015.

Kevin Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2015–11298 Filed 5–14–15; 8:45 am]

BILLING CODE 4337–15–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLNVC02000 L57000000.BX0000; 241A; MO# 4500077944]

Notice of Temporary Closures of Public Land in Washoe County, Nevada

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: As authorized under the provisions of the Federal Land Policy and Management Act of 1976 and relevant regulations, certain public land near Stead, Nevada, will be temporarily closed to all public use to provide for public safety during the 2015 Reno Air Racing Association Pylon Racing Seminar and the Reno National Championship Air Races.

DATES: Temporary closure periods are June 17 through June 20, 2015, and September 16 through September 20, 2015.

FOR FURTHER INFORMATION CONTACT: Leon Thomas, 775–885–6000, email: *l70thoma@blm.gov.* Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 to contact the above individual during normal business hours. The FIRS is available 24 hours a day, 7 days a week, to leave a message or question with the above individual. You will receive a reply during normal business hours.

SUPPLEMENTARY INFORMATION: This closure applies to all public use, including pedestrian use and vehicles. The public lands affected by this closure are described as follows:

Mount Diablo Meridian

T. 21 N., R. 19 E.,
Sec. 8, E½E½, NW¼NE¼;
Sec. 16, SW¼SW¼NE¼, NW¼, W½SE¼.

The area described contains 450 acres, more or less, in Washoe County, Nevada.

The closure notice and map of the closure area will be posted at the BLM Carson City District Office, 5665 Morgan Mill Road, Carson City, Nevada and on the BLM Web site: *http://www.blm.gov/nv/st/en/fo/carsoncity_field.html.* Roads leading into the public lands under the closure will be posted to notify the public of the closure. Under the authority of Section 303(a) of the Federal Lands Policy and Management Act of 1976 (43 U.S.C. 1733(a)), 43 CFR 8360.9–7 and 43 CFR 8364.1, the Bureau of Land Management will enforce the following rules in the area described above: All public use, whether motorized, on foot, or otherwise, is prohibited.

Exceptions: Closure restrictions do not apply to event officials, medical and rescue personnel, law enforcement, and agency personnel monitoring the events.

Penalties: Any person who fails to comply with the closure orders is subject to arrest and, upon conviction, may be fined not more than $1,000 and/or imprisonment for not more than 12 months under 43 CFR 8360.0–7. Violations may also be subject to the provisions of Title 18, U.S.C. 3571 and 3581.

Authority: 43 CFR 8360.0–7 and 8364.1.

Leon Thomas,

Field Manager, Sierra Front Field Office.

[FR Doc. 2015–11682 Filed 5–14–15; 8:45 am]

BILLING CODE 4310–HC–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[15X L1109AF LLUT920000 L13200000.EL0000, UTU–77114]

Notice of Federal Competitive Coal Lease Sale, Utah

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: Notice is hereby given that the United States Department of the Interior, Bureau of Land Management (BLM) Utah State Office will offer certain coal resources described below as the Flat Canyon Tract (UTU–77114) in Sanpete County, Utah, for competitive sale by sealed bid, in accordance with the Federal regulations for competitive lease sale notices and the Mineral Leasing Act of 1920, as amended and supplemented.

DATES: The lease sale will be held at 1:00 p.m. on June 17, 2015. Sealed bids must be sent by certified mail, return receipt requested, to the Collections Officer, BLM Utah State Office or be hand delivered to the public room Contact Representatives, BLM Utah State Office at the address indicated below, and must be received on or before 10:00 a.m. on June 17, 2015. Any bid received after the time specified will not be considered and will be returned.

The BLM public room Contact Representative will issue a receipt for each hand-delivered sealed bid. The outside of the sealed envelope containing the bid must clearly state that the envelope contains a bid for Coal Lease Sale UTU–77114 and is not to be opened before the date and hour of the sale.

ADDRESSES: The lease sale will be held in the Monument Conference Room at the following address: BLM-Utah State Office, Suite 500, 440 West 200 South, Salt Lake City, Utah 84101. Sealed bids can be hand delivered to the BLM public room Contact Representative or mailed to the Collections Officer, BLM Utah State Office, at the address given above.

FOR FURTHER INFORMATION CONTACT: Contact Jeff McKenzie, 440 West 200 South, Suite 500 Salt Lake City, Utah 84101–1345 or telephone 801–539–4038. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 to leave a message or question for the above individual. The FIRS is available 24 hours a day, 7 days a week. Replies are provided during normal business hours.

SUPPLEMENTARY INFORMATION: This coal lease sale is being held in response to a lease by application (LBA) submitted by Canyon Fuel Company, LLC. to the BLM on March 18, 1998. The successful bidder must pay to the BLM the cost BLM incurs regarding the publishing of this sale notice. If there is no successful bidder, the applicant will be responsible for all publishing costs.

The coal resources to be offered consist of all reserves recoverable by underground methods available in the following-described lands located in Sanpete County, Utah, approximately 10 miles southeast of Scofield, Utah, under both private and public surface.

Salt Lake Meridian

T. 13 S., R.6 E.,
Sec. 21, lots 1 to 4, inclusive, E1/2NE1/4, and E1/2SE1/4;

APPENDIX B – LETTERS/NOTICES

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Western Region
2600 N. Central Avenue, Fourth Floor Mailroom
Phoenix, AZ 85004-3050

DEPARTMENT OF THE INTERIOR
Bureau of Indian Affairs

Notice of Availability and Notice of Public Meetings for the Draft Environmental Impact Statement (DEIS) for the Proposed Aiya Solar Project, Clark County, NV.

AGENCY: Bureau of Indian Affairs, Interior

ACTION: Notice

SUMMARY: This notice advises the public that the Bureau of Indian Affairs (BIA), as Lead Agency, with the Moapa Band of Paiute Indians (Tribe), the Bureau of Land Management (BLM), the Environmental Protection Agency (EPA), and the US Fish and Wildlife Service (USFWS), as cooperating agencies, intends to file the Draft Environmental Impact Statement (DEIS) for the proposed Aiya Solar Project on the Moapa River Indian Reservation, Clark County, Nevada. This notice also announces that the DEIS is now available for public review and that two public meetings will be held at the Moapa River Indian Reservation and the BLM Southern Nevada District Office to solicit comments on the DEIS.

DATES: In order to be fully considered at this stage of the environmental review process, written comments on the DEIS must be delivered to the address(es) provided below by June 29, 2015. The public meeting on the Moapa River Indian Reservation will be held on June 17, 2015 and the public meeting at the BLM Southern Nevada District Office will be held on June 18, 2015.

ADDRESSES: You may mail, email, hand carry or telefax written comments to either Mr. Chip Lewis, Acting Regional Environmental Protection Officer, BIA Western Regional Office Branch of Environmental Quality Services, 2600 North Center Avenue, 4th Floor Mail Room, Phoenix, AZ 85004-3008; telephone: (602) 379-6782; fax (602) 379-3833; email: chip.lewis@bia.gov; or Mr. Paul Schlafly, Natural Resource Officer, BIA Southern Paiute Agency, 180 N. 200 E., Suite 111 or P.O. Box 720, St. George, UT 84771; telephone: (435) 674-9720; fax: (435) 674-9714; email: paul.schlafly@bia.gov. Please include your name, return address and the caption "DEIS Comments, Aiya Solar Project," on the first page of your written comments. Individual respondents may request confidentiality; however, anonymous comments will not be considered.

Both public meetings will be held from 5:30 to 7:30 pm. The June 17th public meeting will be held in the Tribal Hall on the Moapa River Indian Reservation, 1 Lincoln Street, Moapa, NV 89025. The June 18th public meeting will be held in the conference room of the BLM Southern Nevada District Office at 4701 North Torrey Pines, Las Vegas, NV 89130. Each meeting is anticipated to last approximately two hours, with light refreshments provided.

SUPPLEMENTARY INFORMATION: The purpose of the Proposed Project is to construct a 100 megawatt (MW) solar electric generation facility and associated infrastructure on the Moapa River Indian Reservation (Reservation), and obtain a right-of-way (ROW) grant on BLM lands for a 230 kV transmission line and associated access roads. The primary need for the Proposed Project is to provide land lease income, sustainable renewable resources, new jobs and other benefits for the Tribe by using solar resources on Reservation lands where there is exposure to high levels of solar radiation. A secondary need for the Proposed Project is to assist utilities in meeting their renewable energy goals by providing electricity generated from solar resources from Tribal lands that may be efficiently connected to existing transmission lines in a manner that minimizes adverse site impacts.

The proposed Federal action, taken under 25 U.S.C. 415, is the BIA approval of a solar energy ground lease for approximately 900 acres and associated agreements entered into by the Tribe with Aiya Solar Project, LLC for the construction and operation of a 100 megawatt (MW) solar project using photovoltaic (PV) technology. The solar project would be located entirely on the Reservation. A short transmission line associated with the Project will be located on Federal lands administered and managed by the BLM. The EIS will provide a framework for the BIA and the BLM to make determinations and take their respective federal actions. The federal action for the BIA would be to approve or deny a lease and any associated ROW on tribal lands for the proposed solar facility, and for the BLM to approve or deny grants of ROW for the proposed transmission line.

The EPA may adopt the documentation to make decisions under their authority and the Tribe may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The USFWS will review the document for consistency with the Endangered Species Act, as amended and other implementing acts.

LOCATIONS WHERE THE DEIS IS AVAILABLE FOR REVIEW: The DEIS will be available for review at: BIA Western Regional Office, 2600 North Central Avenue, 12th Floor, Suite 210, Phoenix, Arizona; BIA Southern Paiute Agency, 180 North 200 East, Suite 111, St. George, Utah; and the BLM Southern Nevada District Office, 4701 N. Torrey Pines Drive, Las Vegas, Nevada. The DEIS is also available on line at: www.AiyaSolarProjectEIS.com.

AUTHORITY: This notice is published in accordance with section 1503.1 of the Council on Environmental Quality Regulations (40 CFR parts 1500 through 1508) and Section 46.305 of the Department of Interior Regulations (43 CFR part 46), implementing the procedural requirements of the National Environmental Policy Act, as amended (42 U.S.C. 4321 *et seq.*), and is in the exercise of authority delegated to the Assistant Secretary – Indian Affairs, by part 209 of the Departmental Manual.

Date: 5/12/15

Mr. Bryan Bowker
Director, Western Region
Bureau of Indian Affairs

Sister Megan Jackson has been called to serve as a missionary for the Church of Jesus Christ of Latter-day Saints in the Oklahoma City, Oklahoma Mission.

She will be speaking in the Logandale 5th Ward on Su... 24th, 2015 at ... in the new ... Chapel. She ... the Provo MT... 10, 2015

Megan is t... ter of Jamie a... Jackson.

Megan Jackson

Mecham

of her and grateful for her diligent, honorable service and they anxiously await her return.

She will speak on Sunday, May 24, 2015 at 9:00 a.m. in the Singles Branch and at 11:00 a.m. in Overton 4th Ward.

Pamela is the daughter of Jan and Ray Mecham.

Madysen Messer

Messer Shimai will be returning home this Friday from the Japan Fukuoka Mission after serving as a missionary for the Church of Jesus Christ of Latter-day Saints.

She will be speaking on Sunday, May 24, 2015 at 9:00 a.m. in the Logandale 2nd ward in the new Logandale Chapel.

Madysen is the daughter of Matt and Corinne Messer and granddaughter of Elwyn and Verla Adams and the late Nelda Messer.

Obituari

Loretta Hunt

Loretta Bowman Hunt, 96, former longtime Clark County Clerk, died Friday May 15, 2015, of causes incident to age. She passed away quietly in her sleep at home after visiting with family.

Born in Cappalappa, Moapa Valley, Nevada on February 10, 1919, Loretta was the eldest daughter of Elmer and Elizabeth Bowman. One of 11 children, Loretta helped in the family business in Logandale as a teenager, working as a store clerk.

She served a mission to Minnesota for The Church of Jesus Christ of Latter-day Saints. Later, in 1947, she took a job temporarily which led to working as a deputy county clerk in the Clark County Clerk's office. While working as a deputy, she appeared on the television program "What's My Line," after awarding a marriage license to Bing Crosby and his bride Kathryn.

In 1965, she was appointed to fill an unexpired term as Clark County Clerk, and would serve eight consecutive terms before retiring in 1999 at the age of 79. She worked for Clark County for over 50 years. During that time, she oversaw major changes to the clerk's office, and traveled extensively as a national officer of the National Association of County Recorders, Election Officials and Clerks. She was president of the organization in 1977-78. She was a lifelong Democrat, but was respected by those of both parties.

She remained single all of her life, until shortly after retiring as County Clerk at age 79, she married James Charles Hunt, ... been her sweeth... she was young. ... together until his ... 2007.

Although ... known as an e... ficial, Loretta ... quilted, and croch... master level, mak... intricate designs ... ily and friends. ... years, she took c... aunt, who lived with her, and ... ported her husband as his he... downhill. She was beloved by ... ily and respected in her pro... capacity.

She is survived by her sibli... Stiborek, Imogene Anderse... Christensen, Melvin Bowm... Murton Bowman. She is also ... by nieces and nephews wh... her like a second mother, an... late husband's children. She ... ceded in death by her husba... ents and siblings Elmo, Perry, ... Ruth, and Kenna.

Visitation will be from 6 p.... p.m., Friday, May 22, at the LD... pel at 375 N. Hollywood Blvd. (... and Hollywood) in Las Vegas.

Funeral services will be hel... a.m., Saturday, May 23, at t... gandale chapel of The Church ... sus Christ of Latter-day Saints ... N Moapa Valley Blvd., with vis... prior to the service from 9:30 ... 10:30 a.m. at the Logandale ch...

Burial will be at the Logandale ... etery under the direction of Moap... ley Mortuary, 702 398-3600. F... and family are invited to sign an... book at www.moapavalleymo... com.

Notice of Availability and Notice of Public Meetings on the Draft Environmental Impact Statement for the Aiya Solar Project

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians announces the availability of the Draft Environmental Impact Statement (EIS) for the Aiya Solar Project located on the Moapa River Indian Reservation (Reservation) northeast of Las Vegas in Clark County, Nevada. The Proposed Project is a 100 megawatt solar electric generation facility and associated infrastructure on the Reservation, and right-of-way on Bureau of Land Management (BLM) lands for a short transmission line. The BIA is now in the 45 day public comment/review period. As part of the public comment/review period, the BIA invites you to attend one of two public meeting to discuss and comment on the proposed Aiya Solar Project. Written and verbal comments will be accepted during the meetings. The two meetings are open to the public and all interested parties are encouraged to attend.

Please plan to attend one of the following meetings:

Wednesday, June 17, 2015
Moapa River Indian Reservation Tribal Hall,
1 Lincoln Street, Moapa, NV 89025-0340

Thursday, June 18, 2015
U.S. Bureau of Land Management (BLM) Conference Room,
4701 N. Torrey Pines Dr., Las Vegas, NV 89130

Both meetings will be held between 5:30 pm and 7:30 pm with a brief presentation at 5:45 pm. Light refreshments will be served.

The Draft EIS is available for review and you may submit comments on the project website: http://www.AiyaSolarProjectEIS.com/

For more information on how to participate, contact *Mr. Chip Lewis, Acting Regional Environmental Protection Officer, at chip.lewis@bia.gov (602.379.6782)* or *Mr Paul Schlafly, Natural Resource Officer, paul.schlafly@bia.gov, (435.674.9720).*

LAS VEGAS SUN

News

Experts: Switch within its rights to split from NV Energy

May 20, 2015 (2 a.m.)

BY KYLE ROERINK | Power industry experts are challenging a Public Utilities Commission legal memo issued last week that critiques a Las Vegas tech company for wanting to sever ...

COURTESY OF SWITCH

Switch SUPERNAP.

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May 20, 2015

BY KEN SWEET AND ERIC TUCKER, ASSOCIATED PRESS | Four big banks will pay $2.5 billion in fines and plead guilty to criminally manipulating global currency market going back to 2007. JPMorgan Chase, Citigroup, Barclays and The Royal Bank of Scotland

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4. 'Dancing With the Stars' finale tonight features Las Vegas and love
5. Prostitute pleads guilty in overdose death of Google exec

COMPLETE LISTING »

Affidavit of Publication

STATE OF NEVADA)
COUNTY OF CLARK) SS:

BOULDER MESA ENVIRONMENTAL
1155 ALBION ROAD
BOULDER CO 80305

Account # **29248**
Ad Number **0000521784**

Eileen Gallagher, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for, was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 1 edition(s) of said newspaper issued from 05/20/2015 to 05/20/2015, on the following days:

05 / 20 / 15

/S/ Eileen Gallagher
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 20th day of May, 2015

Notary Mary A. Lee

MARY A. LEE
Notary Public State of Nevada
No. 09-8941-1
My Appt. Exp. Nov. 13, 2016

Notice of Availability and Notice of Public Meetings on the Draft Environmental Impact Statement for the Aiya Solar Project

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PLEASE PLAN TO ATTEND ONE OF THE FOLLOWING MEETINGS:

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Las Vegas, NV 89130

Both meetings will be held between 5:30 pm and 7:30 pm with a brief presentation at 5:45 pm. Light refreshments will be served.

The Draft EIS is available for review and you may submit comments on the project website: http://www.AiyaSolarProjectEIS.com/

For more information on how to participate, contact Mr. Chip Lewis, Acting Regional Environmental Protection Officer, at chip.lewis@bia.gov (602.379.6782) or Mr Paul Schlafly, Natural Resource Officer, paul.schlafly@bia.gov, (435.674.9720).

PUB: May 20, 2015
LV Review-Journal

APPENDIX C – PUBLIC MEETING MATERIALS

PUBLIC COMMENT FORM
Bureau of Indian Affairs

AIYA SOLAR PROJECT
www.aiyasolarprojecteis.com/
Draft Environmental Impact Statement (DEIS) Comments

NAME: _____

ADDRESS: _____

_____

_____

( ) I have no comments, please keep me informed.

( ) Please remove me from your mailing list for this Project.

( ) I have the following comments about the DEIS for the Aiya Solar Project:

_____

_____

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Return to: Mr. Chip Lewis, Regional Environmental Protection Officer, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, AZ 85004
Email: chip.lewis@bia.gov

(Or fold, seal, and add a stamp to the back of the sheet)

……..……...

……...

place
stamp
here

_____

_____

_____

Mr. Chip Lewis
Regional Environmental Protection Officer
BIA Western Regional Office
2600 North Central Avenue
4th Floor Mailroom
Phoenix, AZ 85004

SIGN-IN SHEET: AIYA SOLAR PROJECT

Draft Environmental Impact Statement Public Meeting – June 17, 2015

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
Darren Daboda MBOP	PO Box 112 Moapa, NV 89025	d_daboda@yahoo.com
Chip Lewis BIA/WRO/EGS	2600 N. Central Ave Phx. AZ 85004	chip.lewis@bia.gov
PATRICIA MCCABE LOGAN SIMPSON	51 WEST THIRD ST, SUITE 450 TEMPE AZ 85202	PMCCABE@LOGANSIMPSON.COM
Terry Bohl MBOP	PO Box 42 Overton NV	terry.ltrec@gmail.com
ROBERT TOM MBOP	PO Box 214 Moapa NV 89025	robertton2003@yahoo.com
Christina Varela BIA SPA/Realty	PO Box 720 St George Utah 84771	christina.varela@bia.gov
Iris Daboda MBOP	BOX 112 MOAPA, NV. 89025	—
Larry Olsen Holly Energy Partners	2100 N. Redwood Rd., #10 Salt Lake City, UT 84116	larry.olsen@hollyenergy.com

SIGN-IN SHEET: AIYA SOLAR PROJECT

Draft Environmental Impact Statement Public Meeting – June 17, 2015

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
VERNON LEE MOAPA BAND OF PAIUTES	P.O. BOX 773 MOAPA, NV. 89025	N/A
Delaine Bow MBOP Council Member	PO Box 340 Moapa NV 89025	dbow@Mvdsl.com
Tamera Dawes DOI BIA WRO	2400 N. Central Phoenix AZ 85004	Tamera.Dawes@bia.gov
Shane Parashonts MBOP - HR DIRECTOR	P.O. Box 340 Moapa, NV 89025	Mbophr@Mvdsl.com
Anthony Frank	PO BOX 503 MOAPA NV 89025	NONE
OSMER BECK	370 E 460 S LEHI UT 84043	obeck@transcon.com
Tim Green	444 S. Main Cedar City, UT	tgreen@transcon.com
BILL CHILSON	110 Roslyn Dr Concord, CA 94518	billchil@comcast.net

SIGN-IN SHEET: AIYA SOLAR PROJECT

Draft Environmental Impact Statement Public Meeting – June 18, 2015

Bureau of Land Management (BLM) Conference Room, 4701 N. Torrey Pines Dr., Las Vegas, NV 89130

Name/Organization	Mailing Address	Email
VERNON LEE MOAPA BAND OF PAIUTES	P.O BOX 773 MOAPA. NV. 89025	N/A
Darren Daboda MBOP	PO BOX 112 moapa, NV 89025	d_daboda@yahoo.com
Elizabeth Trosper NEV Pipeline	2275 Corporate Circle Suite 275, Henderson NV	elizabeth@trosperconsulting.com
Doris Kerylu K Gerrad BLM	4701 N. Torrey Pines	~~dkgerrard~~ dkerylukgerrard@BLM.GOV
KATHRYN FOSTER	4701 N TORREY PINES DR LAS VEGAS NV	kffoster@blm.gov
KEN MACDONALD	400 S 4TH ST 3RD FLOOR LAS VEGAS NV 89101	KMACDONALD@ NEWFIELDS.COM
Tamera Dawes	~~[illegible]~~ 2400 N. Central Phx AZ 85004	tamera.dawes@bia.gov
Chip Lewis	" "	chip.lewis@bia.gov

SIGN-IN SHEET: AIYA SOLAR PROJECT

Draft Environmental Impact Statement Public Meeting – June 18, 2015

Bureau of Land Management (BLM) Conference Room, 4701 N. Torrey Pines Dr., Las Vegas, NV 89130

Name/Organization	Mailing Address	Email
Christina Varela WRO | BIA | SPA	Po Box 720 St. George, Utah 84771	Christina.Varela@bia.gov
OSMER BECK TRANSCON		obeck@transcon.com
Tim Green Transcon	444 S. Main Cedar City, UT 84720	tgreen@transcon.com
Mark C. Slaughter Bureau of Reclamation	Boulder City, NV	mslaughter@usbr.gov

APPENDIX D – COMMENT LETTERS

Protecting the air we share
Air Quality
CLARK COUNTY • DEPARTMENT OF AIR QUALITY
4701 W. Russell Road Suite 200 • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994
Lewis Wallenmeyer Director

May 29, 2015

Mr. Paul Schlafly
Bureau of Indian Affairs
Southern Paiute Agency
180 North 200 East, Suite 111
P.O. Box 720
St. George, UT 84770

E-mail: paul.schlafly@bia.gov

Re: Aiya Solar Project Draft Environmental Impact Statement (DEIS)

Dear Mr. Schlafly:

Thank you for providing the opportunity to comment on the DEIS concerning the proposed *Aiya Solar* project that would be located on the *Moapa River Indian Reservation* within Clark County, Nevada. The proposed project has been described as one that will provide for the construction and operation of a solar photovoltaic power generation facility up to 100 MW located on tribal land. The project will also include a 230 kV transmission line that will cross tribal, federal (i.e., BLM), and private lands.

The proposed project is located within Hydrographic Area (HA) 216, which is a maintenance area for the ozone pollutant. As addressed in a letter dated October 15, 2013, sent by the *Clark County Department of Air Quality* (DAQ) to the *Bureau of Indian Affairs*, any questions concerning Section 176(c) general conformity requirements have been satisfied. However, the proposed project may still be subject to the *Federal Indian Country Minor New Source Review*, as described in 79 FR 31035 (May 30, 2014). In addition, and at a minimum, construction activities taking place outside tribal land will be subject to all applicable Clark County Air Quality Regulations (AQRs). These may include the following sections:

Section 94 of the AQRs requires that a dust control permit be obtained prior to: (i) soil disturbance or construction activities that impact 0.25 acres or greater, (ii) mechanized trenching 100 feet or greater in length, or (iii) mechanical demolition of any structure 1,000 square feet or greater. Construction activities include, but are not limited to, land clearing; soil and rock excavation, removal, hauling, crushing, or screening; initial landscaping; staging and material storage areas; parking; and access roads. Additionally, *Best Available Control Measures* must be employed during construction activities at all times. These measures are described in the *Construction Activities Dust Control Handbook*, which is available online at:

http://www.clarkcountynv.gov/Depts/AirQuality/Documents/DustControl/DustForms/DUST_CONTROL_HANDBOOK.pdf

Protecting the air we share
Air Quality
CLARK COUNTY • DEPARTMENT OF AIR QUALITY
4701 W. Russell Road Suite 200 • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994
Lewis Wallenmeyer Director

Section 94 of the AQRs also requires that a construction project involving: (i) ten acres or more, (ii) trenching activities one mile or greater in length, or (iii) structure demolition using implosive or explosive blasting techniques, shall include a detailed supplement to the dust mitigation plan that will become part of the dust control permit as an enforceable permit condition.

Section 91 of the AQRs restricts construction of unpaved roads or alleys in public thoroughfares within HA 216. It also requires owners and/or operators of existing unpaved roads, constructed prior to April 1, 2002, to implement applicable control measures.

Section 12 of the AQRs requires issuance of a stationary source permit for any applicable source located in Clark County that has a potential to emit a regulated air pollutant that is equal to or greater than the thresholds listed in that section. However, a definitive determination cannot be made until a complete application is submitted to DAQ and reviewed for applicability.

If you have any questions regarding these comments, please contact me at (702) 455-1600. Thank you.

Sincerely,

L. Wallenmeyer

Lewis Wallenmeyer, Director
Clark County Department of Air Quality

LW:aml

SOUTHERN NEVADA WATER AUTHORITY
100 City Parkway, Suite 700 • Las Vegas, NV 89106
MAILING ADDRESS: P.O. Box 99956 • Las Vegas, NV 89193-9956
(702) 862-3400 • snwa.com

June 25, 2015

Chip Lewis
Acting Regional Environmental Protection Officer
BIA Western Regional Office
Branch of Environmental Quality Services
2600 North Central Avenue, 4th Floor Mail Room
Phoenix, AZ 85004-3008

Dear Mr. Lewis:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT PUBLIC COMMENTS, AIYA SOLAR PROJECT

Southern Nevada Water Authority (SNWA) appreciates the opportunity to provide comments on the Draft Environmental Impact Statement for the Aiya Solar Project (80 FR 28001 [May 15, 2015]) (Notice of Availability). SNWA is a political subdivision of the State of Nevada formed by a cooperative agreement between seven water and wastewater agencies in southern Nevada including Big Bend Water District, City of Boulder City, City of Henderson, City of Las Vegas, City of North Las Vegas, Clark County Water Reclamation District, and Las Vegas Valley Water District. SNWA is responsible for managing the regional water resources of southern Nevada and developing solutions that will ensure adequate future water supplies for Las Vegas through the development and implementation of regional water resource management and conservation programs and initiatives. SNWA has surface water rights within the vicinity of the Aiya Solar Project (i.e., Muddy River Springs Area, California Wash, and Lower Moapa Valley). SNWA is also a member of the Silver State Energy Association (SSEA), a joint-powers association made up of the City of Boulder City, Lincoln County Power District No. 1, Overton Power District No. 5, and the Colorado River Commission of Nevada. The SSEA has a proposed transmission system project that will be located adjacent to the Aiya Solar Project.

The following are SNWA's comments on the Notice of Availability:

HYDROLOGY

- Figure 1-1 Project Location: Based on Figure 1-1, the Aiya Solar Project location is beyond the Place of Use for the existing Moapa Band of Paiute Indians surface water rights. Since there is an existing Moapa Valley Water District pipeline in the vicinity of the solar project area, the use of municipal water for the project should be considered, as opposed to moving water rights or diverting additional water from the Muddy River.

- Section 2.2.7 Water Supply page 2-16 and Section 4.3.2.1 Proposed Project page 4-7: Section 2.2.7 states "Water service during operation would be provided via a tap into the Muddy Valley Irrigation Company (MVIC) pipeline that crosses the solar site and/or water delivered to the site via truck." However Section 4.3.2.1 states "Operational water would be provided via the existing Moapa Valley Irrigation District water pipeline that crosses the site." Please confirm that the existing pipeline that crosses the solar site is not the property of the Moapa Valley Water District or NV Energy and correct any discrepancies.

- Section 2.3.1.3 Alternative Water Supply page 2-37: Using groundwater as an alternative water source for the Aiya Solar Project, via a drilled well at the solar project site, has the potential to pump Muddy River water, and therefore potentially impact Muddy River flows. The project proponent must carefully consider their well construction plans in order to avoid this situation.

- Section 2.3.1.3 Alternative Water Supply page 2-37: States "The Applicant would prepare a Groundwater Monitoring and Reporting Plan to guide implementation of the Project if groundwater is used." Since SNWA is responsible for the management and development of water resources for southern Nevada, we respectfully request to be notified when the Groundwater Monitoring and Reporting Plan is final and available to the public.

- Section 3.5.1 Surface Water page 3-10: States "Currently, consumptive uses related to natural evapotranspiration, surface-water diversions, and groundwater diversions reduce the Muddy River flows to about 25,000 (acre-feet per year (AFY) (35 cfs) at the Warm Springs Road gaging station, located about 3 kilometers downstream of the spring area. Thus, about 32 percent (12,000 AFY) of the regional flux to the area is consumptively removed from the system above the gage. Of this, about 3,600 AFY, or 25 percent, is estimated to be lost by evapotranspiration from the well-vegetated areas of the headwater channels and springs, and the rest is removed through pipelines by Moapa Valley Water District (MVWD) and Nevada Energy Company (NV Energy) for use elsewhere." Please include the source of the evapotranspiration consumptive use and estimates of the Muddy River depletions.

- Section 3.5.3 Water Rights page 3-12: States "The place of diversion, unless changed by the Nevada State Engineer pursuant to an application, would be at existing points within the Tribe's Reservation." The term "place of diversion" should be changed to "Point of Diversion". Also note that the Place of Use will need to be changed with an application to the Nevada State Engineer.

- Section 4.5.2.1 Proposed Project page 4-13: States " Currently, Muddy River flows are about 25,000 AFY (35 cubic feet per second [cfs]) at the Warm Springs Road gaging station,..." The official name for the "Warm Springs Road gaging station" is "USGS 09416000 Muddy River Near Moapa, NV". Also, the flows from the Water Year 2013 report put the annual runoff at 28,070 acre-feet and the mean flow at 38.8 cubic feet per second. Please make these corrections.

CLARK, LINCOLN, AND WHITE PINE COUNTIES GROUNDWATER DEVELOPMENT PROJECT

Section 4.17 Table 4-10 Ongoing and Reasonably Foreseeable Actions in the Project Vicinity page 4-107: Lists the SNWA Clark, Lincoln, and White Pine Counties Groundwater Development Project. The *Description*, *Status*, and *Primary Impact Location* are outdated and should be revised according to SNWA's November 2012 Conceptual Plan of Development and Bureau of Land Management (BLM)-granted right-of-way (May 2013):

- *Description*: Transport approximately ~~122,755~~ 124,988 ac-ft/yr of groundwater. Production wells, ~~306~~ 263 mi (~~490~~ 423 km) of buried water pipelines, ~~5~~ 3 pumping stations, ~~6~~ 5 regulating tanks, 3 pressure reducing stations, a buried storage reservoir, a water treatment facility, and about ~~323~~ 272 mi (~~517~~ 437 km) of 230- kV overhead power lines, 2 primary and ~~5~~ 4 secondary substations.

- *Status*: ROD signed December 2012, ROW~~s~~ issued May 2013. Construction expected to be complete by 2022.

- *Primary Impact Location*: ~~The project would develop groundwater in the following amounts in two hydraulically connected valleys near the Project area.~~ SNWA plans to develop 91,988 ac-ft/yr of its existing water rights in Spring, Delamar, Dry Lake, and Cave valleys as part of the project. For the Delamar and Dry Lake valleys specifically, the Nevada State Engineer issued water right rulings to SNWA on March 22, 2012 for 6,042 ac-ft/yr and 11,584 ac-ft/yr, respectively.

EASTERN NEVADA TRANSMISSION PROJECT

The BLM is finalizing an Environmental Assessment for the SSEA Eastern Nevada Transmission Project (ENTP) (N-86357) and a Decision Record is anticipated in fall 2015. The transmission system would be constructed in Clark County, Nevada and allow for the transport of available electrical resources to meet demands, improve system reliability, provide operational flexibility, and potentially allow for the interconnection of new renewable resources in the future. The ENTP would consist of approximately 33 miles of 230-kilovolt overhead double-circuit transmission lines connecting the Silverhawk and Newport substations and approximately 21 miles of 230-kilovolt single-circuit transmission lines connecting the Gemmill and Tortoise substations. Based on the information and maps provided to the public by the Bureau of Indian Affairs (BIA), the Aiya Solar Project would be located adjacent to the ENTP alignment, specifically the Gemmill to Tortoise transmission line.

- SNWA, on behalf of the SSEA, respectfully requests close coordination with both the BIA and the project proponent to ensure that both projects have the appropriate space needed to safely construct, operate, and maintain their facilities.

- Section 4.17 Table 4-10 Ongoing and Reasonably Foreseeable Actions in the Project Vicinity page 4-106: Please include the ENTP as a reasonably foreseeable action in the solar project vicinity:

- *Project Name / Owner*: Eastern Nevada Transmission Project / Silver State Energy Association
- *Description*: Construction, operation, and maintenance of two separate 230-kV transmission lines; the Silverhawk to Newport and Gemmill to Tortoise transmission lines, approximately 33 and 21 miles in length, respectively. Approximately 9.5 miles of the Gemmill to Tortoise line parallels to but is located between 700-2,600 feet north of the Lincoln County Conservation, Recreation, and Development Act corridor to avoid conflict with private and tribal lands.
- *Status*: Pending.
- *Primary Impact Location*: Gemmill to Tortoise transmission line is located adjacent to the northeast corner of the Aiya Solar Project (the Silverhawk to Newport transmission line is located approximately 25 miles southwest of the solar project).

SNWA appreciates the opportunity to comment on the Notice of Availability. Please continue to keep SNWA informed of the status of this proposal. If you have any questions regarding these comments or need additional information, please contact Kimberly Reinhart, Senior Environmental Planner, at (702) 862-3457.

Sincerely,

Lisa M. Luptowitz
Environmental Resources Division Manager

cc: Scott Krantz, SSEA

Kern River
GAS TRANSMISSION COMPANY
A BERKSHIRE HATHAWAY ENERGY COMPANY

Callee Butcher, Manager
Land & Environment
2755 E. Cottonwood Parkway #300
Salt Lake City, UT 84171-0400
Callee.butcher@kernrivergas.com

June 17, 2015

Mr. Chip Lewis
Acting Regional Environmental Protection Officer
Bureau of Indian Affairs, Western Regional Office
Branch of Environmental Quality Services
2600 North Center Avenue, 4th Floor
Phoenix, AZ 85004-3050

RE: Responses on the Draft Environmental Impact Statement for the Aiya Solar Project

Dear Mr. Lewis,

Kern River Gas Transmission Company (Kern River) owns and operates a natural gas pipeline system regulated by the Federal Energy Regulatory Commission (FERC). Kern River's system originates in southwestern Wyoming, continues through Utah and southern Nevada, and terminates at points in Southern California. For most of its length, the system includes two parallel 36-inch-diameter pipelines. Including these parallel mainlines and smaller-diameter lateral pipelines, the systems consists of 1,717 miles of pipeline with a throughput design capacity of 2.17 billion cubic feet per day.

Kern River has reviewed the May 6 and 7, 2015, Draft Environmental Impact Statement (DEIS) for the proposed Aiya Solar Project (Aiya). It is Kern River's understanding that written comments must be filed by June 29, 2015 in order to be considered during the environmental review. Kern River appreciates the opportunity to provide the following responses to the DEIS regarding the Aiya project.

1) Kern River provided comments to the Aiya Notice of Intent (NOI) in a letter dated January 29, 2015, which stated the following:

> Kern River has reviewed the Notice of Intent to Prepare an Environmental Impact Statement and the maps of proposed Aiya facilities. The Potential Collection Station Locations identified in those maps are on property adjacent to Kern River's Reid Gardner Lateral, and the Gen-Tie Route to either of those collection stations would cross the Reid Gardner Lateral. In addition, construction and operations access by Aiya of collection stations at either of the potential locations may involve the crossing of the Reid Gardner Lateral by heavy equipment.

Under chapter 3.11.1 of volume 1, Planned Land Uses, Aiya provided the following comments in its May 6 and 7, 2015, DEIS document:

> The proposed gen-tie that would interconnect the proposed solar generating facility to the regional electrical grid would cross BLM-administered lands south of the solar site. These federal lands are crossed by many existing utility lines and portions of designated corridors containing several electrical transmission lines connecting to the Reid-Gardner Substation (230kV NVE Harry Allen-Reid Gardner #1 and #2, 345kV NVE Harry Allen-Red Butte, 500kV NVE Crystal-Navajo, and 500kV IPP HVDC Intermountain), and natural gas pipelines owned by Kern River Gas Transmission. The utility corridors are designed for co-location utilities and are managed by the BLM.

Kern River offers the following comments to the Aiya report in the above May 6 and 7, 2015, DEIS by stating that the crossing of the proposed gen-tie would also include the use of vehicles and other equipment during construction and operation of the Aiya facilities. Coordination between the Aiya and Kern River will need to take place to ensure that the integrity of the pipeline facilities are protected during these crossings.

To protect Kern River's pipelines from external loading, Kern River must perform an engineering evaluation to determine the effects of any proposed equipment use. The make and model of equipment, maximum axle weight, as applicable, and crossing location will need to be provided. Additional cover, mats, timber bridges or other protective materials deemed necessary by Kern River will be placed over Kern River facilities for the duration of any loading. Protective materials will be purchased, placed and removed at no cost to Kern River. The right of way must be restored to its original condition. Kern River may require markings to identify specific areas where equipment use is authorized.

2) Kern River provided comments to the Aiya NOI in a letter dated January 29, 2015, which stated the following:

> Electric transmission lines that cross or run parallel to existing pipelines cause electrical interference that may cause corrosion to the pipelines. Kern River is required by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA), to identify and mitigate the effects to its pipeline system of alternating-current-induced corrosion. Kern River, therefore, requires proponents of new encroaching transmission lines to pay for studies to assess the effect of those lines on Kern River's system. The proponent of a new transmission line should also pay for any mitigation Kern River determines is necessary to protect Kern River's existing system from the effects of the new transmission line.
>
> Construction and maintenance of new facilities such as Aiya may require construction of new road and/or use of existing dirt roads by heavy equipment. These roads, particularly in the case of dirt roads, may not have been designed to support this type of traffic. Kern River has developed encroachment standards for such crossings of its facilities by third parties to ensure that all crossings may be conducted safely.

Under chapter 5.7 of volume 1, Mitigation Measures – Public Health & Safety, Aiya provided the following comments in its May 6 and 7, 2015, DEIS:

> The Project would coordinate with the holders of all existing ROWs that would be crossed or paralleled by the Project ROWs (transmission lines, access roads, water pipeline) to minimize encroachment conflicts and possible effects to existing transmission lines and pipelines.

Kern River offers the following comments to the Aiya report in the above May 6 and 7, 2015, DEIS by stating that for high voltage AC power lines, high voltage DC power lines or DC traction systems impacting Kern River's pipelines, if Kern River determines in its sole discretion that AC or DC mitigation studies and/or AC or DC mitigation is required from any of Aiya facilities, Aiya would be responsible to pay for the studies and/or mitigation necessary (including future studies and/or additional mitigation, and maintenance of the mitigation systems) to protect against the power lines for the life of the facility.

All metallic utility lines impacting Kern River's pipelines shall have cathodic test leads connecting both the utility and the pipelines. Kern River will install, at Aiyas expense, such test leads on its pipelines if required. If Kern River determines in its sole discretion that interference studies and/or mitigation (including; but not limited to, bonds or galvanic drains) are required Aiya would be responsible to pay for the studies and/or mitigation necessary to protect against the metallic utility lines.

It is understood that Aiya will cause any encroachments at no expense to Kern River. Aiya shall be responsible for restoration of all disturbed land on Kern River's right of way caused by the construction or maintenance of said encroachments. Aiya will need to supply Kern River plans and drawings, in detail, illustrating the proposed encroachments and Kern River's facilities. Authorization must be obtained from Kern River before work is performed within its right of way.

Kern River appreciates the opportunity to comment on this DEIS and will make its personnel available to evaluate potential impacts from specific crossings and other encroachments to ensure Kern River may continue to safely operate and maintain its existing pipeline system.

Respectfully submitted,

KERN RIVER GAS TRANSMISSION COMPANY

Callee Butcher, Manager
Land & Environment

DESERT TORTOISE COUNCIL
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28 June 2015

Mr. Paul Schlafly
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paul.schlafly@bia.gov

Mr. Chip Lewis,
Bureau of Indian Affairs, Western Regional Office
2600 North Central Avenue
4th Floor Mailroom
Phoenix, Arizona 85004
charles.lewis@bia.gov

RE: Formal comments concerning the Aiya Solar Project Draft Environmental Impact Statement

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of this species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council regularly provides information to individuals, organizations and regulatory agencies on matters potentially affecting the desert tortoise within its historical range.

We note in Appendix B, Page 2 of 2 in Volume 2 that you attempted to contact the Council in November 2014 to allow us to provide scoping comments. Unfortunately that notice was sent to an old mailing address in Beaumont, California. Please note for this and other projects affecting tortoises that our current mailing address is in Palmdale, California as given above and on our current website (deserttortoise.org).

In our review of the Draft Environmental Impact Statement (DEIS) with particular focus on protection of desert tortoises we are pleased with the level of detail provided. We offer the following few suggestions to the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), and/or future biological consultants implementing protective measures to enhance the measures already identified in the DEIS.

(1) According to Section 4.8.4.1.1.1, Page 4-47 in Volume 1 "Installation of exclusionary fencing at the solar site could result in take of desert tortoises due to equipment operation, removal of tortoise burrows, and subsequent tortoise relocation;" and "All desert tortoises found within the proposed solar site boundary of the Proposed Project would be relocated in

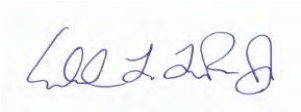
accordance with USFWS protocols to BLM-managed lands or Tribal lands, outside of the nearest fence in suitable habitat." We feel strongly that any tortoises dying as a result of being relocated into adjacent areas should be applied to the mortality take limit identified in the Biological Opinion issued by the USFWS for this project. If the mortality of relocated tortoises exceeds the mortality take limit in the Biological Opinion, the BLM and/or BIA would then be obligated to reinitiate consultation with the USFWS to determine effective ways of avoiding additional deaths.

(2) Mitigation measure 5, Page 5-7 in Volume 1 indicates, "Under supervision of an authorized biologist, biological monitors will be present at all active construction locations (not including the solar field after it has been fenced with desert tortoise fencing and clearance surveys have been completed)." It is strongly advised that this measure be amended to state that the biologists/monitors will remain within the fenced site until which time it is completely brushed and grubbed. This is prudent to address the earlier statements that eggs and juveniles may be missed during clearance surveys (see Section 4.8.4.1.1.1, Page 4-46 in Volume 1), and will allow one last opportunity to encounter and remove smaller tortoises or eggs that may be exposed by heavy equipment.

(3) Finally, we understand that the cumulative effects analysis pertains to projects within about five miles of the proposed project, but we feel that it is prudent to amend the analysis to assess the cumulative effects to long term recovery of the tortoise within the recovery unit. Following are a few examples of questions we would like to see answered in this amended analysis: (a) How many recent projects (and particularly solar projects) have occurred within the Northeastern Mojave Recovery Unit for desert tortoise? (b) How many acres of occupied tortoise habitats have been developed? (c) How many tortoises have been displaced and accidentally killed by these projects within this recovery unit? (d) How have these projects cumulatively impacted genetic or habitat connectivity of the region? And, (e) would the proposed project contribute to habitat fragmentation on a regional scale?

Again, we offer these comments to enhance what we perceive as a well written assessment with thoughtful protective measures. Thank you for continuing to consider us as an Affected Interest for this and other projects affecting tortoises on public and tribal lands in Nevada.

Regards,



Edward L., LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Comments on the Draft Environmental Impact Statement (DEIS) for the proposed Aiya Solar Project are listed below. Please contact Jill Jensen (Archaeologist, National Park Service, National Trails Intermountain Region) for clarification or discussion of these comments. Ms. Jensen can be reached via phone at 801-741-1012, ext. 115 or email at jill_jensen@nps.gov.

- Table E5-2 is missing the Old Spanish National Historic Trail (OSNHT)
- Table 1-3 is missing the National Trails System Act (NTSA)
- OSNHT concerns were raised during scoping (as cited in Appendix E) but these concerns were not listed in Table 1-2
- Discussion of OSNHT in Culture History is overly brief and fails to use proper nomenclature (the trail should be referred to as the Old Spanish National Historic Trail).
- Discussion of OSNHT and potential viewshed impacts should be discussed under cultural resources, not under visual resources.
    - Impact (or lack of impact) to the viewshed of the OSNHT should be evaluated according to NTSA, not according to VRM standards and practices
        - Please evaluate using NTSA criteria.
- Section 4.16.6 is somewhat confusing. It states that "no irreversible or irretrievable impacts to cultural resources are anticipated" despite the fact that data recovery will be required to avoid adverse effects. Archaeological excavations are irreversible but result in no adverse effects to the site as the data from the site is being preserved.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

JUN 29 2015

Chip Lewis
Bureau of Indian Affairs
Western Regional Office
2600 North Central Avenue, 4th floor
Phoenix, AZ 85004-3008

Subject: USEPA comments on the Draft Environmental Impact Statement for the Proposed Aiya Solar Project, Clark County, Nevada (CEQ # 20150129)

Dear Mr. Lewis:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA continues to support increasing the development of renewable energy resources in an expeditious and well-planned manner. Using renewable energy resources such as solar power can help the nation meet its energy requirements while reducing greenhouse gas emissions. We are also very supportive of tribal government interests in renewable energy as a means to help meet tribal economic development goals and help the nation's transition to cleaner energy.

EPA is a cooperating agency for the project and provided formal scoping comments on December 2, 2014. We also provided comments on preliminary draft chapters of the Administrative Draft EIS to the Bureau of Indian Affairs on April 24 and May 1, 2015. We commend the BIA for extensive early agency coordination on this project and for incorporating a number of our previous recommendations. In particular, we were pleased to note the addition of air quality mitigation measures, greenhouse gas emission estimates, quantification of potential impacts to jurisdictional waters of the US, and the inclusion of a draft biological assessment.

EPA remains concerned about the project's potential impacts to site hydrology, waters of the US, air quality and sensitive species. Based on our review of the Draft EIS, we have rated the project and document as *Environmental Concerns – Insufficient Information* (EC-2) (see the enclosed "Summary of EPA Rating Definitions"). Our recommendations include incorporating, into the Final EIS, a verified jurisdictional determination from the US Army Corps of Engineers; committing to avoid specific natural drainages with adequate protective buffers to withstand storm flows; identifying potential climate change impacts on the project area, and corresponding resiliency measures; clarifying assumptions used in the air quality analysis; and adding protections for nearby residents from fugitive dust and emissions. We are available to further discuss our enclosed detailed comments.

EPA appreciates the opportunity to review this Draft EIS. When the Final EIS is released for public review, please send one hard copy to the address above (mail code: ENF-4-2). If you have any

questions, please contact Tom Plenys, the lead reviewer for this project, at 415-972-3238 or plenys.thomas@epa.gov.

Sincerely,

Kathleen Martyn Goforth For
Manager
Environmental Review Section

Enclosures: Summary of EPA Rating Definitions
EPA's Detailed Comments

cc: Darren Daboda, Chairman, Moapa Band of Paiutes
Michael Burroughs, U.S. Fish and Wildlife Service
Patricia L. McQueary, U.S. Army Corps of Engineers
Greg Helseth, Bureau of Land Management

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The 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)

The 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 the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The 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)

The 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 potentially 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 or 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 NEPA 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.

USEPA DETAILED COMMENTS ON THE AIYA SOLAR PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT, CLARK COUNTY, NEVADA, JUNE 29, 2015

Jurisdictional Waters of the United States

According to the Draft Environmental Impact Statement, 29 ephemeral drainages were identified within the proposed project area and all drain into the Muddy River south of the project (p. 3-12). These channels vary in size from 2-foot- wide single channels to features up to 30 feet wide (bank to bank). According to the Jurisdictional Waters Report (Appendix F), the proposed solar facility would impact an estimated 0.27 acres of jurisdictional waters of the US (waters), which is within the 0.5 acre limit allowable for coverage under Nationwide Permit 51; however, the U.S. Army Corps of Engineers has not yet made a jurisdictional determination for this project.

Recommendation:

- Include, in the Final EIS, a copy of the USACE verified jurisdictional determination, including maps of the drainage network with and without an overlay of the project footprint, proposed fencing, and proposed earthen berms and drainage channels.

EPA is concerned that the extent of waters may have been underestimated. Appendix F indicates that a large flood event occurred less than a week prior to the field work conducted to map the reach and extent of federal waters (p. 6). This event caused rainfall that exceeded four inches in parts of the Moapa Valley in a period of two hours and may have exceeded six inches over 12 hours in some parts of the valley. As a result, the flood event removed any evidence of pre-flood low flow channels and, given this challenge, all mapping of drainage features was based on the extent of the post-flood active floodplain (p. 6). Some of the waters that were identified as non-jurisdictional may, in fact, be jurisdictional. The use of historical aerial photography could improve the accuracy of the field work in light of the recent flood event.

Additionally, impacts to potentially jurisdictional waters associated with drainage M06 may not have been quantified. Based on the drainage maps included in Appendix F, it appears drainage M06 would run between two sections of the solar farm layout; however, the preliminary site plan included in Chapter 2 and the Draft Biological Assessment (Appendix K) shows a perimeter chain link fence, as well as one of the two proposed drainage channels, in the location of M06. As described in Chapter 2, this proposed, gabion-lined drainage channel is expected to be 50 feet wide and 1,500 feet in length. Generally, when rock gabions, concrete weirs, soil cement and rip rap (p. 4-14) are constructed in previously unconfined drainages, there are direct and indirect hydraulic responses to the modifications, including increased bank and channel erosion (scour leading to down cutting and often head cutting of the channel bed), and increases in sediment transport to downstream aquatic environments, especially in poorly consolidated alluvial soils characteristic of desert environments.

Recommendations:

- In areas where the Ordinary High Water Mark is difficult to determine due to the recent flood event, EPA recommends the use of historical photos/aerial photography to improve the accuracy of the jurisdictional delineation.
- Clarify, in Appendix F and in Chapter 4 of the Final EIS, whether the potentially jurisdictional sections of drainage M06 (Sections B and D) will be fully avoided. Explain how the acreages of direct and indirect impacts to waters were calculated, and update those calculations, as necessary. State whether total impacts to waters would still fall under the threshold for coverage under NWP 51.

- Clarify, in Appendix F and in Chapter 4 of the Final EIS, whether any jurisdictional portions of drainages M01 through M05 would be avoided.
- Include, in the Final EIS, a draft hydrology report (p. 2-3 indicates the analysis has not been completed), a draft stormwater management plan and a draft drainage plan to facilitate assessment of impacts and effectiveness of mitigation measures.
- Include, in the Final EIS, the "series of Best Management Practices" referenced that would be used to reduce localized soil impacts resulting from wind and water erosion (p. 4-10).

EPA is aware that last September's flood event induced major storm flows and washed out nearby sections of Reservation Road and Highway 168. We understand that Highway 168 serves as the main access to road to the Moapa Reservation, and, on the day of the flood event, school buses were delayed returning children to their homes on the Reservation, due to the impacts to the highway.

Recommendations:

- Provide additional details, in Section 4.5.2.1, on last year's flood event and describe the areas in the project vicinity that were most severely damaged and the roadways that were compromised, including Highway 168.
- Discuss whether the proposed locations for the solar panels and equipment are in areas where these impacts occurred and whether any design changes for the proposed project are warranted to avoid loss or damage during future storm events.
- Discuss, in the Final EIS, whether either of the two proposed drainage channels has the potential to redirect flood flows and exacerbate impacts to areas that were affected by the flood. It appears the proposed southeast drainage channel would direct flows toward the area where Highway 168 had been compromised. Consider whether any design changes to the project are warranted to avoid exacerbation of flooding impacts to the highway and the community during future storm events.

EPA remains concerned about the indirect impacts to the tributaries downstream of the site leading to Muddy River, as well as indirect impacts to the Muddy River itself. Indirect effects could include, but are not limited to: 1) changes in sediment transport downstream to the Muddy River; 2) increases in volume and velocity of polluted stormwater from impervious surfaces (e.g. soil cement) and placement of fill in waters; 3) decrease in water quality from the impairment of ecosystem services such as water filtration, groundwater recharge, and attenuation of floods; 4) disruption of hydrological and ecological connectivity to the Muddy River; and 5) decreases in biodiversity and ecosystem stability. As noted in the Draft EIS, the Muddy River is considered impaired, and is on Nevada's 303(d) list for exceeding state water quality standards (p. 3-9).

Recommendations:

- Assess, in the Final EIS, the indirect impacts to the Muddy River, and reduce potential discharges into waters and the disruption of natural drainage channels to ensure any indirect effects to Muddy River and its tributaries are limited.
- Discuss, in the Final EIS, the monitoring protocols and the water quality thresholds to be used to ensure the Muddy River is not further impaired due to the proposed project.

If the magnitude of impacts to jurisdictional waters would require an individual permit subject to CWA Section 404, the proposed project would be required to demonstrate that the alternative for which USACE approval is sought is the least environmentally damaging practicable alternative

(LEDPA), taking into account cost, existing technology and logistics in light of the overall project purpose (40 CFR 230).

Recommendations:

- If an individual Section 404 permit is required, prepare a CWA 404(b)(1) alternatives analysis that incorporates avoidance and minimization measures for jurisdictional waters. Alternatives that would avoid and minimize impacts to waters should include solar array installation methods that would preserve some or all of the jurisdictional drainages. We recommend the following avoidance and minimization measures:
  - utilize existing natural drainage channels on site and more natural features, such as earthen berms for site drainage, rather than engineered and armored channels. Discuss the feasibility of using natural drainages on site rather than the construction of the two large gabion-lined channels proposed.
  - maintain natural washes and identify, in the Final EIS, adequate buffers for flood control to the maximum extent practicable.
  - see additional avoidance and minimization measures under the 'Ephemeral Drainages and Site Preparation' section below.
- Prepare a compensatory mitigation plan to offset any impacts to waters that are determined to be unavoidable. The CWA 404(b)(1) alternatives analysis and any proposed compensatory mitigation to offset unavoidable impacts should be included in, or appended to, the Final EIS.

Ephemeral Drainages and Site Preparation

EPA remains concerned that grading, disk and roll, and disruption of natural flows on site could result in impacts to ephemeral washes, vegetation and site drainage without commensurate benefit to soil stability, regardless of the ultimate jurisdictional determination. We note that the mitigation measures in Section 5.1 state that grading on the solar site would be minimized to only those areas where necessary to meet the construction and operational requirements of the project (p. 5-1); however, since Section 4.8 only indicates generally that 672 acres are expected to be cleared, graded or 'disk and rolled' (p. 4-36), it is not clear where those areas are. We continue to recommend that the Final EIS include site designs and drainage plans that minimize disruption of on-site soils and natural flows as well as minimize erosion, local scour, sedimentation, and potential destabilization and damage that could result from installing equipment in drainages, as much as possible.

Recommendations:

- Identify, in the Final EIS, specific drainages within the project area that would be targeted for avoidance, and integrate the maintenance of vegetated buffers to protect drainages and address erosion concerns. Drainage buffers should be adequate in size to allow channels to adjust to the new hydraulic conditions without the need for major human-made structures and long-term active maintenance.
- Quantify the acreages to be graded versus cleared versus disked and rolled under each alternative. Demonstrate that downstream flows would not be adversely impacted due to any proposed changes to natural washes resulting from proposed grading or drainage management measures.
- To the greatest extent possible, maintain micro-level topography and employ installation techniques that avoid disturbance of existing desert pavement and soil crusts.
- Discuss, in the Final EIS, where berms would be used to direct surface flow around the

project site and how berms would affect upstream and downstream hydrological conditions. Section 5.2 indicates that, in some cases, upstream surface flow will be diverted around the solar array and returned to the ephemeral drainages downstream of the site.

- Clarify, in the Final EIS, the flow path of exterior storm water flow, and summarize modeled impacts (hydraulics of flow, velocity, sediment transport, sediment delivery and potential stream channel changes) of diverting drainages.
- Discuss the benefits of maintaining some or all of the ephemeral washes, including preserving important habitat, retaining ephemeral wash functions, potentially reducing erosion and construction costs, and improving the implementation and success of closure plans after the site is retired from operation.
- Minimize the number of road crossings over washes, consider reducing the width of access roads to accommodate a single vehicle (we note Ch. 2 indicates 20 ft. wide access ways every 500 to 1,300 feet) and design necessary crossings to provide adequate flow-through during storm events. Also, consider whether certain drainages warrant a bridge.
- Include, in the Final EIS, a description of the potential effects of fencing on drainage systems. Ensure that the fencing proposed for this project would meet appropriate hydrologic performance standards. Discuss the use of break-away fencing in strategic locations to allow for adequate flows during storm events, and incorporate such designs, as appropriate. If break-away fencing is not incorporated into the project design, discuss the implications of sediment accumulation along the fence boundary, and explain how downstream flows would not be affected.
- Discuss, in the Final EIS, the feasibility of mounting PV panels at sufficient height above ground, utilizing telescoping legs for the solar modules, to avoid vegetation removal during construction, limit or eliminate grading and disk and rolling under PV panels, and minimize drainage disturbance. Discuss the feasibility of maintaining vegetation at 12 inches in height during installation in areas where existing slope conditions allow, given that the Draft EIS indicates that vegetation will be allowed to grow to 12 inches during operations. Quantify acreage of natural vegetation and soil that would not require clearing and grading as a result of using telescoping legs. Compare these results to existing alternatives, and incorporate project design changes into site design and conditions of certification, accordingly.

Additional point of clarification:

- The Draft EIS includes contradictory information regarding ephemeral drainages. We note in the Draft EIS that the field investigation performed in September 2014 identified 29 ephemeral drainages within the proposed project area (p. 3-9 & 3-12), yet Section 3.8.3.2 states that only "nine small ephemeral drainages cross the project area" (p. 3-31). The Final EIS should reconcile these references.

Air Quality

The Draft EIS does not explain the assumptions used to calculate particulate matter emissions. We note construction is anticipated to commence on October 1, 2015 and conclude on December 31, 2016. The Draft EIS estimates PM_{10} emissions of 13.91 tons during construction in 2016, which approaches the significance threshold of 15 tons per year (tpy) utilized in the Draft EIS's air impact assessment. The fugitive dust contribution to PM_{10} emissions from construction activities is only

expected to result in 0.03 tons during 2016, compared to 4.46 tons during the last 3 months of 2015. All other categories of PM_{10} emissions are notably higher during 2016 versus 2015.

Recommendation:

- Explain, in the Final EIS, the rationale behind the notably different fugitive dust estimates during construction in 2016 versus 2015. Update the construction air quality analysis and Table 4-2, if necessary.

Chapter 4 states that removal of vegetation and soil crusts by grading and "disk and roll" would expose soil and increase the potential for wind and water erosion. The site also has the potential for high winds (p. 4-10). According to Appendix I, of the 900 acre site, 100 acres are expected to be disturbed for parking and laydown, 180 acres for site grading and 1 acre for access road construction. It appears the remaining 619 acres would be left undisturbed; however, this is inconsistent with the estimate in Chapter 4 which identifies 672 acres that are expected to be cleared, graded or "disk and rolled" (p. 4-36).

Recommendations:

- Update, in the Final EIS, the acreages on-site that are expected to be disturbed during construction for access roads, parking and laydown areas, and solar arrays and ensure consistent figures are used in the biological and water resources chapters. Update any resources analyses, including the construction air quality analysis and Table 4-2, as necessary.
- Confirm whether the 50% dust control efficiency factor used in Appendix I (based on the use of water and other tackifiers) would apply to all acreages disturbed during the entire construction period. Discuss whether this assumption is applied equally in 2015 and 2016.

We note the added explanation in Chapter 4 indicating that, once constructed, the solar panels would block the wind and therefore there would be negligible fugitive dust emissions from under the solar arrays during operations (p. 4-23).

Recommendation:

- Provide, in the Final EIS, additional support for the assumption that no fugitive dust emissions would occur during project operations from other than access roads. Consider contacting facility managers and reviewing monitoring reports for other First Solar PV projects currently operating in Nevada and California to determine whether they have been successful at eliminating fugitive dust from under their solar arrays. Include a discussion on the success of dust palliatives to date at these facilities.

In light of the proximity of nearby residents and the numerous ongoing and reasonably foreseeable development projects highlighted in Table 4-10, we continue to recommend minimizing disturbance to vegetation and soils as much as possible, so that the need for measures to reduce fugitive dust emissions is minimized or eliminated. It is our understanding that residents may live in close proximity to this proposed project, a notable difference between the proposed project and the more isolated Moapa K-Road and Res Americas solar projects. The air quality chapters do not discuss potential impacts to nearby sensitive receptors nor measures to minimize any such impacts.

Recommendation:

- Highlight in the air quality chapter any sensitive receptors that may be in close proximity to the project area. Include a map showing the proximity of nearby residences, schools and other potentially affected areas. If in close proximity, specify the means by which BIA would minimize impacts to sensitive receptors, such as children, the elderly, and the infirm, as applicable. For example, locate construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners, as applicable.

Climate Change

We note the added references to the Council on Environmental Quality's December 18, 2014[1] revised draft guidance that describes how federal departments and agencies should consider the effects of greenhouse gas emissions and climate change in their NEPA reviews. The revised draft guidance supersedes the draft greenhouse gas and climate change guidance released by CEQ in February 2010. This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action.

EPA commends BIA for including estimates of greenhouse gas emissions from construction and operation of the project. Additionally, we note the discussion of potential climate change impacts on water availability in the cumulative impacts section. In disclosing the potential impacts of the proposed project and alternatives, consideration should be given to whether and to what extent the impacts, across all resources, may be exacerbated by expected climate change in the project area.

Recommendations:

- Include, in the Final EIS, a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the project, based on U.S. Global Change Research Program[2] assessments, to assist with identification of potential project impacts that may be exacerbated by climate change and to inform consideration of measures to adapt to climate change impacts.
- Considering that the project is planned to be in operation for up to 30 years, include, in the Final EIS, additional details on how climate change may affect the project, including the potential for increased storm flows through the site and to the Muddy River, the reclamation and restoration efforts after construction and decommissioning, and the potential impacts on sensitive species, including the desert tortoise.
- Consider, in the Final EIS, practicable changes to the proposal to make it more resilient to anticipated climate change, as appropriate.[3]

Biological Resources

The development of the project site, utilities and transmission corridor could result in the long-term loss of approximately 590 acres of habitat for species, including the threatened Mojave desert

[1] The draft guidance is available in full at: http://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf

[2] http://www.globalchange.gov/

[3] See footnotes 52 and 53 of the CEQ's December 2014 revised draft guidance for additional information and references on climate change adaptation and resiliency.

tortoise (p. 4-49). We commend BIA and USFWS for identifying an extensive, preliminary set of mitigation measures to protect sensitive species during the life of the proposed project (p. 4-47). We understand that the Biological Assessment and Biological Opinion for this project have not yet been finalized. The Biological Opinion will play an important role in informing the decision on which alternative to approve and what commitments, terms, and conditions must accompany that approval.

Recommendations:

- Provide, in the Final EIS, an update on the consultation process. Summarize and append any relevant documents associated with the ESA Section 7 consultation process, including the Biological Assessment and Biological Opinion.
- Clarify, in Chapter 4.8.1.1.1 of the Final EIS, whether suitable lands are available or whether a previous reservation-wide management and conservation plan may be utilized that would provide sufficient compensatory lands for impacts to desert tortoise.
- Include, in the Final EIS, any additional mitigation and monitoring measures that result from consultation with USFWS to protect sensitive biological resources, including desert tortoise, golden eagles and Moapa dace.

Regarding impacts to birds, we were pleased to see that the latest Avian Power Line Interaction Committee (APLIC) recommendations to prevent bird fatalities associated with transmission lines were referenced in the Draft EIS. With regard to the potential "lake effect", the Draft EIS indicates that "there is no clear evidence supporting the theory that PV solar facilities have the potential to attract birds that may collide with panels and be killed as a result of the collision" (p. 4-59). As the Draft EIS indicates, the solar industry is cooperating with Federal and state agencies to fund research to provide better definition of interactions between avian species and solar facilities.

Recommendation:

- Include, in the Final EIS, the latest findings and any appropriate adaptive management measures to respond to bird fatalities based on discussions with avian experts currently investigating bird fatalities at solar facilities in California, including the potential "lake effect", as appropriate.

Cultural Resources and Tribal Consultation

The Draft EIS states that BIA contacted eight Tribes in the region inquiring whether there were any concerns about the effects of the proposed project on historic properties or areas of traditional or cultural importance (p. 3-49). Three Tribes responded and their recommendations were incorporated in the Draft EIS. Of the 15 eligible or potentially eligible historic properties located within the project area, four would be adversely affected (p. 4-65).

Recommendations:

- Provide, in the Final EIS, an update on consultation between the BIA and the tribal governments contacted to date.
- Discuss issues that were raised, how those issues were addressed in relation to the proposed project, and how impacts to tribal or cultural resources will be avoided or mitigated, consistent with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments,* Section 106 of the National Historic Preservation Act, and Executive Order 13007, *Indian Sacred Sites.*
- Include in the Final EIS a draft of the Memorandum of Agreement (MOA) between the Moapa Tribe, BIA, the Bureau of Land Management and SHPO that would be required to

define the steps to be taken to lessen, resolve, and/or mitigate the effects to the four historic properties identified as being adversely affected.

Dear Mr. Lewis,

The Nevada Department of Transportation (NDOT) Environmental Services Division has reviewed the DEIS for the proposed Aiya Solar Project on the Moapa River Indian Reservation and offers the following comments:

1. DEIS Table 1-4 (pg. 1-9), Anticipated Permits for the Proposed Project, should be modified to include the need for an occupancy permit from NDOT for any project activities in the SR 168 right-of-way.

2. The DEIS should be revised to provide additional detail concerning what types of improvements may be required for the SR 168 connections to the four project access roads, with a discussion of any potential effects on roadway operations during construction of the connections.

Thank you for the opportunity to review and comment on the DEIS. Please contact me if you have questions concerning our comments.

Sincerely,

Roger Trott
Environmental Scientist III – Socioeconomic Specialist
Nevada Department of Transportation
Environmental Services Division
775-888-7688
rtrott@dot.state.nv.us

APPENDIX E – COMMENT RESPONSE MATRIX

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
Lewis Wallenmeyer, Director Clark County Department of Air Quality 4701 W. Russell Road Suite 200 Las Vegas. NV 89118-2231	A - 1	The proposed project may be subject to the *Federal Indian Country Minor New Source Review*	The Project would not have equipment that would require a minor source permit.	No change to EIS necessary
	A - 2	Construction activities taking place outside tribal land will be subject to all applicable Clark County Air Quality Regulations (AQRs) including a dust control permit requiring application of Best Available Control Measures. These measures are described in the Construction Activities Dust Control Handbook. A detailed supplement to the dust mitigation plan may be also be required that will become part of the dust control permit as an enforceable permit condition.	The Project would obtain a dust control permit for activities outside tribal land including any required supplements.	This commitment was added to Section 5.3 of the FEIS.
		Section 91 of the AQRs restricts construction of unpaved roads or alleys in public thoroughfares within HA 216. It also requires owners and/or operators of existing unpaved roads, constructed prior to April 1, 2002, to implement applicable control measures.	The Project does not expect to construct unpaved roads within public thoroughfares.	No change to EIS necessary
		A stationary source permit would also be required for any applicable source located in Clark County that has a potential to emit a regulated air pollutant that is equal to or greater than the listed thresholds.	The Project would not construct a stationary source in Clark County.	No change to EIS necessary
Lisa M. Luptowitz Environmental Resources Division Manager Southern Nevada Water Authority P.O. Box 99956 Las Vegas, NV 89193-9956	B - 1	Based on Figure 1-1, the Aiya Solar Project location is beyond the Place of Use for the existing Moapa Band of Paiute Indians surface water rights. Since there is an existing Moapa Valley Water District pipeline in the vicinity of the solar project area, the use of municipal water for the project should be considered, as opposed to moving water rights or diverting additional water from the Muddy River.	One of the primary purposes of the solar project is to support the economic development for the benefit of the Moapa Band of Paiutes. By purchasing construction water from the Tribe, the Project would further support the Tribe's economic benefit. Additionally, the Tribe's water rights would be put to beneficial use. If the Project were to purchase municipal water, those purchases would not benefit the Tribe. The proposed use of surface water from the Muddy River would require changing the Place of Use and Manner of Use of the Tribe's existing water rights, but will not require the diversion of additional water. Water for operations is proposed to be provided from the Moapa Valley Water District (MVWD) pipeline.	No change to EIS necessary
	B - 2	Section 2.2.7 Water Supply page 2-16 and Section 4.3.2.1 Proposed Project page 4-7: Section 2.2.7 states "Water service during operation would be provided via a tap into the Muddy Valley Irrigation Company (MVIC) pipeline that crosses the solar site and/or water delivered to the site via truck." However Section 4.3.2.1 states "Operational water would be provided via the existing Moapa Valley Irrigation District water pipeline that crosses the site." Please confirm that the existing pipeline that crosses the solar site is not the property of the Moapa Valley Water District or NV Energy and correct any discrepancies.	The pipeline belongs to Moapa Valley Water District (MVWD).	Section 4.3.2.1 and 2.2.7 have been corrected in the FEIS.
	B - 3	Section 2.3.1.3 Alternative Water Supply page 2-37: Using groundwater as an alternative water source for the Aiya Solar Project, via a drilled well at the solar project site, has the potential to pump Muddy River water, and therefore potentially impact Muddy River flows. The project proponent must carefully consider their well construction plans in order to avoid this situation.	As stated in section 4.5.2.3 and 4.8.4.1.2.3 of the DEIS, the use of groundwater under this alternative would be part of the Tribe's allocation of groundwater that has been included in analyses of Muddy River flows.	No change to EIS necessary

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
		Section 2.3.1.3 Alternative Water Supply page 2-37: States "The Applicant would prepare a Groundwater Monitoring and Reporting Plan to guide implementation of the Project if groundwater is used." Since SNWA is responsible for the management and development of water resources for southern Nevada, we respectfully request to be notified when the Groundwater Monitoring and Reporting Plan is final and available to the public.	As stated in section 4.5.2.3 and 4.8.4.1.2.3 of the DEIS, the use of groundwater under this alternative would be part of the Tribe's allocation of groundwater that has been included in analyses of Muddy River flows and in the Programmatic BO. The SNWA would be notified when and if the Groundwater Monitoring and Reporting Plan is made available to the public.	The commitment was added to the water mitigation measures in Section 5.2 in the FEIS
	B - 4	Section 3.5.1 Surface Water page 3-10: States "Currently, consumptive uses related to natural evapotranspiration, surface-water diversions, and groundwater diversions reduce the Muddy River flows to about 25,000 (acre-feet per year (AFY) (35 cfs) at the Warm Springs Road gaging station, located about 3 kilometers downstream of the spring area. Thus, about 32 percent (12,000 AFY) of the regional flux to the area is consumptively removed from the system above the gage. Of this, about 3,600 AFY, or 25 percent, is estimated to be lost by evapotranspiration from the well-vegetated areas of the headwater channels and springs, and the rest is removed through pipelines by Moapa Valley Water District (MVWD) and Nevada Energy Company (NV Energy) for use elsewhere." Please include the source of the evapotranspiration consumptive use and estimates of the Muddy River depletions.	These estimates came from the Hydrogeologic Assessment and Groundwater Modeling Analyses for the Moapa Solar Energy Center (Mifflin and Associates 2013) which was an Appendix to the Final EIS for that project.	This reference was added to the FEIS.
	B - 5	Section 3.5.3 Water Rights page 3-12: States "The place of diversion, unless changed by the Nevada State Engineer pursuant to an application, would be at existing points within the Tribe's Reservation." The term "place of diversion" should be changed to "Point of Diversion". Also note that the Place of Use will need to be changed with an application to the Nevada State Engineer.	The term "place of diversion" was changed to "Point of Diversion". An application to the Nevada State Engineer will be filed to change the Place of Use and Manner of Use.	Section 3.5.3 in the FEIS was modified to reflect these changes.
	B - 6	Section 4.5.2.1 Proposed Project page 4-13: States " Currently, Muddy River flows are about 25,000 AFY (35 cubic feet per second [cfs]) at the Warm Springs Road gaging station,..." The official name for the "Warm Springs Road gaging station" is "USGS 09416000 Muddy River Near Moapa, NV". Also, the flows from the Water Year 2013 report put the annual runoff at 28,070 acre-feet and the mean flow at 38.8 cubic feet per second. Please make these corrections.	The official name for the station ("USGS 09416000 Muddy River Near Moapa, NV") was added and flows were updated.	Section 4.5.2.1 in the FEIS was modified to reflect these changes.

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
	B - 7	CLARK, LINCOLN AND WHITE PINE COUNTIES GROUNDWATER DEVELOPMENT PROJECT - Section 4.17 Table 4-10 Ongoing and Reasonably Foreseeable Actions in the Project Vicinity page 4-107: Lists the SNWA Clark, Lincoln, and White Pine Counties Groundwater Development Project. The *Description, Status,* and *Primary Impact Location* are outdated and should be revised according to SNWA's November 2012 Conceptual Plan of Development and Bureau of Land Management (BLM)-granted right-of-way (May 2013): • *Description*: Transport approximately ~~122,755~~ 124,988 ac-ft/yr of groundwater. Production wells, *ZQ6* 263 mi (490 423 km) of buried water pipelines, § 3 pumping stations, 6 5 regulating tanks, 3 pressure reducing stations, a buried storage reservoir, a water treatment facility, and about 323- 272 mi (54-7 437 km) of 230- kV overhead power lines, 2 primary and 5-4 secondary substations. • *Status-*. ROD signed December 2012, ROWs issued May 2013. Construction expected to be complete by 2022. • *Primary Impact Location:* ~~The projectwon k1 develop ground water in the following amounts in two~~ hydmati~~cally connected valleys near the Project area.~~ SNWA plans to develop 91,988 ac-ft/yr of its existing water rights in Spring, Delamar, Dry Lake, and Cave valleys as part of the project. For the Delamar and Dry Lake valleys specifically, the Nevada State Engineer issued water right rulings to SNWA on March 22, 2012 for 6,042 ac-ft/yr and 11,584 ac-ft/yr, respectively.	The description of this project was updated.	Table 4-10 was modified to reflect these changes.
	B - 8	EASTERN NEVADA TRANSMISSION PROJECT - request close coordination with both the BIA and the project proponent to ensure that both projects have the appropriate space needed to safely construct, operate, and maintain their facilities.	Coordination with ENT Project would be undertaken through the BLM ROW process to ensure compatibility between the two projects. This commitment is consistent with the last mitigation measure in Section 5.7 in the EIS.	No change to the EIS necessary
		Section 4.17 Table 4-10 Ongoing and Reasonably Foreseeable Actions in the Project Vicinity page 4-106: Please include the ENTP as a reasonably foreseeable action in the solar project vicinity: o *Project Name / Owner.* Eastern Nevada Transmission Project / Silver State Energy Association o *Description:* Construction, operation, and maintenance of two separate 230-kV transmission lines; the Silverhawk to Newport and Gemmill to Tortoise transmission lines, approximately 33 and 21 miles in length, respectively. Approximately 9.5 miles of the Gemmill to Tortoise line parallels to but is located between 700-2,600 feet north of the Lincoln County Conservation, Recreation, and Development Act corridor to avoid conflict with private and tribal lands, o *Status*: Pending. o *Primary Impact Location*: Gemmill to Tortoise transmission line is located adjacent to the northeast corner of the Aiya Solar Project (the Silverhawk to Newport transmission line is located approximately 25 miles southwest of the solar project).	This project was added as a foreseeable action.	Table 4-10 in the FEIS was modified to reflect these changes.

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
Callee Butcher, Manager Land & Environment Kern River Gas Transmission Company 2755 E. Cottonwood Parkway #300 Salt Lake City, UT 84171-0400	C	The gen-tie would cross Kern River's Reid Gardner Lateral Pipeline. Coordination between the Aiya and Kern River will need to take place to ensure that the integrity of the pipeline facilities is protected during crossings of the pipeline by vehicles and other equipment during construction. This will include an engineering evaluation to determine the effects of any proposed equipment use as well as potential mitigation and identification of specific areas where equipment use would be authorized. Aiya would be responsible for AC or DC mitigation studies and/or AC or DC mitigation required as a result of any of Aiya facilities and any cathodic testing and mitigation and ROW restoration. Authorization must be obtained from Kern River before work is performed within its right of way.	The Project would coordinate with Kern River regarding crossings of Kern River facilities and the need for any associated studies. This commitment is consistent with the last mitigation measure in Section 5.7 of the EIS.	No change to EIS necessary
Edward L., LaRue, Jr., M.S. Ecosystems Advisory Committee, Chairperson Desert Tortoise Council 4654 East Avenue S. #257B Palmdale, CA 93552	D - 1	Any tortoises dying as a result of being relocated into adjacent areas should be applied to the mortality take limit identified in the Biological Opinion issued by the USFWS for this project. If the mortality of relocated tortoises exceeds the mortality take limit in the Biological Opinion, the BLM and/or BIA would then be obligated to reinitiate consultation with the USFWS to determine effective ways of avoiding additional deaths.	Tortoises that are relocated are counted as a "take", and the USFWS sets a limit on the number of tortoises that are allowed to be relocated. As such, if a relocated tortoise dies, its take number has already been accounted for. BLM/BIA would reinitiate consultation If the take number is exceeded, per terms and conditions in the BO.	The BO has been added as Appendix O of the FEIS.
	D – 2	Mitigation measure 5, Page 5-7 in Volume 1 indicates, "Under supervision of an authorized biologist, biological monitors will be present at all active construction locations (not including the solar field after it has been fenced with desert tortoise fencing and clearance surveys have been completed)." This measure should be amended to state that the biologists/monitors will remain within the fenced site until which time it is completely brushed and grubbed to address the earlier statements that eggs and juveniles may be missed during clearance surveys (see Section 4.8.4.1.1.1, Page 4-46 in Volume 1), and will allow one last opportunity to encounter and remove smaller tortoises or eggs that may be exposed by heavy equipment.	USFWS calculations to determine the amount of allowable "take" are adjusted to include "take" of eggs and juveniles that may be missed during protocol clearance surveys. The protocol clearance surveys that would be conducted require very extensive coverage of the project area within the fence line and multiple passes of each portion of the site are required to minimize the number of eggs and/or juveniles that are potentially missed. Biological monitors would still be present in the project area while construction occurs within the fence line, and would respond immediately to any potential issues with tortoise within the fence line.	No change to EIS necessary
	D – 3	Suggest amending the analysis to assess the cumulative effects to long term recovery of the tortoise within the recovery unit. (a) How many recent projects (and particularly solar projects) have occurred within the Northeastern Mojave Recovery Unit for desert tortoise? (b) How many acres of occupied tortoise habitats have been developed? (c) How many tortoises have been displaced and accidentally killed by these projects within this recovery unit? (d) How have these projects cumulatively impacted genetic or habitat connectivity of the region? And, (e) would the proposed project contribute to habitat fragmentation on a regional scale?	These issues are addressed in the USFWS Biological Opinion (BO) which is included in the FEIS.	The BO is included as Appendix O in the FEIS.
	D – 4	Address correction: Desert Tortoise Council 4654 East Avenue S. #257B Palmdale, CA 93552	The Desert Tortoise Council address has been corrected as indicated.	No change to EIS necessary
Jill Jensen	E - 1	Table E5-2 is missing the Old Spanish National Historic Trail (OSNHT) Table 1-3 is missing the National Trails System Act (NTSA)	These additions were made.	Tables ES-2 and 1-3 were modified in the FEIS.

Aiya Solar Project
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
RESPONSES TO COMMENTS ON THE DRAFT EIS

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
Archaeologist National Park Service National Trails Intermountain Region	E - 2	OSNHT concerns were raised during scoping (as cited in Appendix A) but these concerns were not listed in Table 1-2	This revision was made.	Table 1-2 was modified in the FEIS.
	E - 3	Discussion of OSNHT in Culture History is overly brief and fails to use proper nomenclature (the trail should be referred to as the Old Spanish National Historic Trail).	Additional discussion of the OSNHT was added to the Cultural History section and the updated nomenclature was incorporated into the discussion.	Section 3.9.1 and 3.9.2 were revised in the FEIS.
	E - 4	Discussion of OSNHT and potential viewshed impacts should be discussed under cultural resources, not under visual resources. Impact (or lack of impact) to the viewshed of the OSNHT should be evaluated according to NTSA, not according to VRM standards and practices. Please evaluate using NTSA criteria.	Discussion of the visual impacts to the OSNHT was repeated in the cultural resources section and evaluation was revised to focus on NTSA criteria.	Discussion of OSNHT was revised and repeated in Section 4.9.2 in the FEIS.
	E - 5	Section 4.16.6 is somewhat confusing. It states that "no irreversible or irretrievable impacts to cultural resources are anticipated" despite the fact that data recovery will be required to avoid adverse effects. Archaeological excavations are irreversible but result in no adverse effects to the site as the data from the site is being preserved.	Changes were made to better reflect the irreversible nature of the effects to cultural resources.	Section 4.16.6 was revised.
Kathleen Martyn Goforth Manager, Environmental Review Section US Environmental Protection Agency Region IX 75 Hawthorne Street San Francisco, CA 94105	F - 1	Include, in the Final EIS, a copy of the USACE verified jurisdictional determination, including maps of the drainage network with and without an overlay of the project footprint, proposed fencing, and proposed earthen berms and drainage channels	The USACE jurisdictional determination has been added to Appendix F.	The Corps determination has been included in Appendix F.
		In areas where the Ordinary High Water Mark is difficult to determine due to the recent flood event, EPA recommends the use of historical photos/aerial photography to improve the accuracy of the jurisdictional delineation.	Aerial photographs do not provide the level of detail necessary to map the Ordinary High Water Mark (OHWM). All potentially jurisdictional waters were mapped on the ground using sub-foot accurate GPS equipment. Since these surveys occurred after the flood event, potentially jurisdictional waters acreages were possibly overestimated and these numbers were reported in Appendix F and verified by the US ACOE.	No change to EIS necessary
		Clarify, in Appendix F and in Chapter 4 of the Final EIS, whether the potentially jurisdictional sections of drainage M06 (Sections B and D) will be fully avoided. Explain how the acreages of direct and indirect impacts to waters were calculated, and update those calculations, as necessary. State whether total impacts to waters would still fall under the threshold for coverage under NWP 51.	See Table 2 in Appendix F. Drainage M06 is not listed in this impacts table as it will be fully avoided by the project.	No change to EIS necessary
		Clarify, in Appendix F and in Chapter 4 of the Final EIS, whether any jurisdictional portions of drainages M01 through M05 would be avoided.	As shown in Table 2 in Appendix F, small areas of potentially jurisdictional portions of drainages M01 through M04 would be impacted. Jurisdictional portions of M05 would not be impacted.	No change to EIS necessary
		Include, in the Final EIS, a draft hydrology report (p. 2-3 indicates the analysis has not been completed), a draft stormwater management plan and a draft drainage plan to facilitate assessment of impacts and effectiveness of mitigation measures.	Additional hydrology and drainage information has been added to the hydrology section of the FEIS.	Additional explanation is included in Sections 3.5.1 and 4.5.2.1 in the FEIS
		Include, in the Final EIS, the "series of Best Management Practices" referenced that would be used to reduce localized soil impacts resulting from wind and water erosion (p. 4-10).	These best management practices to reduce wind and water erosion are included in Sections 5.2 and 5.3 of the DEIS.	No change to EIS necessary

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
	F - 2	Provide additional details, in Section 4.5.2.1, on last year's flood event and describe the areas in the project vicinity that were most severely damaged and the roadways that were compromised, including Highway 168.	Areas in the immediate vicinity of the Project site were not severely damaged. Highway 168 was damaged about 3.5 miles east of the site near I-15 where large drainages are present.	Additional explanation is included in Sections 3.5.1 and 4.5.2.1 in the FEIS
		Discuss whether the proposed locations for the solar panels and equipment are in areas where these impacts occurred and whether any design changes for the proposed project are warranted to avoid loss or damage during future storm events.	The solar site is located on relatively flat topography at or above the headwaters of the small ephemeral drainages in the area. No major drainages cross the site. No design changes are needed to mitigate potential future flooding.	Additional explanation is included in Sections 3.5.1 and 4.5.2.1 in the FEIS
		Discuss, in the Final EIS, whether either of the two proposed drainage channels has the potential to redirect flood flows and exacerbate impacts to areas that were affected by the flood. It appears the proposed southeast drainage channel would direct flows toward the area where Highway 168 had been compromised. Consider whether any design changes to the project are warranted to avoid exacerbation of flooding impacts to the highway and the community during future storm events.	The two drainage channels do not redirect flows to new locations off-site and would not affect the areas that were affected by the flood including Highway 168.	Additional explanation is included in Sections 3.5.1 and 4.5.2.1 in the FEIS
	F - 3	Assess, in the Final EIS, the indirect impacts to the Muddy River, and reduce potential discharges into waters and the disruption of natural drainage channels to ensure any indirect effects to Muddy River and its tributaries are limited. Discuss, in the Final EIS, the monitoring protocols and the water quality thresholds to be used to ensure the Muddy River is not further impaired due to the proposed project.	The quantities of all flows through the site will be maintained and the locations where flows exit the site and the paths they follow to the Muddy River will be the same.	See additional information added to Sections 3.5.1 and 4.5.2.1 in the FEIS
	F - 4	If an individual Section 404 permit is required, prepare a CWA 404(b)(1) alternatives analysis that incorporates avoidance and minimization measures for jurisdictional waters.	The project would not require an individual 404 permit so a 404(b)(1) alternatives analysis is not required.	No change to EIS necessary
	F - 5	Identify, in the Final EIS, specific drainages within the project area that would be targeted for avoidance, and integrate the maintenance of vegetated buffers to protect drainages and address erosion concerns. Drainage buffers should be adequate in size to allow channels to adjust to the new hydraulic conditions without the need for major human-made structures and long-term active maintenance.	The solar site is located on relatively flat topography at or above the headwaters of the small ephemeral drainages in the area. No major drainages or significant volumes of water cross the site. No specific drainages are targeted for avoidance and drainage buffers would not be needed.	No change to EIS necessary
		Quantify the acreages to be graded versus cleared versus disked and rolled under each alternative. Demonstrate that downstream flows would not be adversely impacted due to any proposed changes to natural washes resulting from proposed grading or drainage management measures.	Nearly all the site (approximately 95 %) is expected to prepared using the disk and roll method with only a few areas to be graded using conventional methods.	This was added to the grading discussion the Chapter 2 of the FEIS.
		To the greatest extent possible, maintain micro-level topography and employ installation techniques that avoid disturbance of existing desert pavement and soil crusts.	The disk and roll method and minor grading would maintain existing topography and drainage patterns.	No change to EIS necessary

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
		Discuss, in the Final EIS, where berms would be used to direct surface flow around the project site and how berms would affect upstream and downstream hydrological conditions. Section 5.2 indicates that, in some cases, upstream surface flow will be diverted around the solar array and returned to the ephemeral drainages downstream of the site.	Drainage flows would be routed around small portions of the Project via drainage channels in the northeast corner of the site as shown on the Project site plan (Figure 2-2).	No change to EIS necessary
		Clarify, in the Final EIS, the flow path of exterior storm water flow, and summarize modeled impacts (hydraulics of flow, velocity, sediment transport, sediment delivery and potential stream channel changes) of diverting drainages.	Most washes on site are very small and not well defined. Except in the two small areas where diversion channels will be used, the natural drainage patterns on the site will be maintained. Additional information on site hydrology has been added to the EIS.	Additional information has been added to Sections 3.5.1 and 4.5.2.1 of the FEIS.
		Discuss the benefits of maintaining some or all of the ephemeral washes, including preserving important habitat, retaining ephemeral wash functions, potentially reducing erosion and construction costs, and improving the implementation and success of closure plans after the site is retired from operation.	This information is discussed in Chapter 4 of the FEIS.	No change to EIS necessary
		Minimize the number of road crossings over washes, consider reducing the width of access roads to accommodate a single vehicle (we note Ch. 2 indicates 20 ft. wide access ways every 500 to 1,300 feet) and design necessary crossings to provide adequate flow- through during storm events. Also, consider whether certain drainages warrant a bridge.	As identified in Section 5.2 of the DEIS, road crossings over drainages will be minimized to the extent practical and none warrant a bridge.	No change to EIS necessary
		Include, in the Final EIS, a description of the potential effects of fencing on drainage systems. Ensure that the fencing proposed for this project would meet appropriate hydrologic performance standards. Discuss the use of break-away fencing in strategic locations to allow for adequate flows during storm events, and incorporate such designs, as appropriate. If break-away fencing is not incorporated into the project design, discuss the implications of sediment accumulation along the fence boundary, and explain how downstream flows would not be affected.	Break-away fencing is not planned. As discussed in Section 5.2 of the DEIS, where fencing would be built across drainages, it would be inspected and repaired as needed after significant rain events.	No change to EIS necessary
		Discuss, in the Final EIS, the feasibility of mounting PV panels at sufficient height above ground, utilizing telescoping legs for the solar modules, to avoid vegetation removal during construction, limit or eliminate grading and disk and rolling under PV panels, and minimize drainage disturbance. Discuss the feasibility of maintaining vegetation at 12 inches in height during installation in areas where existing slope conditions allow, given that the Draft EIS indicates that vegetation will be allowed to grow to 12 inches during operations. Quantify acreage of natural vegetation and soil that would not require clearing and grading as a result of using telescoping legs. Compare these results to existing alternatives, and incorporate project design changes into site design and conditions of certification, accordingly.	Telescoping legs are not proposed. Additional information is provided in the following table.	No change to EIS necessary
		Additional point of clarification: The Draft EIS includes contradictory information regarding ephemeral drainages. We note in the Draft EIS that the field investigation performed in September 2014 identified 29 ephemeral drainages within the proposed project area (p. 3-9 & 3-12), yet Section 3.8.3.2 states that only "nine small ephemeral drainages cross the project area" (p. 3-31). The Final EIS should reconcile these references.	29 drainages are located within the study area that was assessed but a lesser number of drainages are located within the footprint of the proposed layout of the solar field and the proposed route of the gen-tie. Many were avoided by the layout of the project. The text in 3.8.3.2 has been modified to be consistent with the other sections.	Sections 3.5.1, 3.5.4, and 3.8.3.2 were updated in the FEIS to clarify the number of drainages.

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
	F - 6	Explain, in the Final EIS, the rationale behind the notably different fugitive dust estimates during construction in 2016 versus 2015. Update the construction air quality analysis and Table 4-2, if necessary.	The difference in the fugitive dust estimates in each year is a result of estimating 3 months of the 15-month construction period would occur in 2015 and 12 months in 2016. This was done in order to show maximum annual emissions (if 12 months of the construction period were to occur during a calendar year. Regardless of when construction would occur, the total emission would remain the same, but would be spread across the two years during which the 15-month construction period would occur.	An explanatory footnote was added to Table 4-2 in the FEIS.
		Update, in the Final EIS, the acreages on-site that are expected to be disturbed during construction for access roads, parking and laydown areas, and solar arrays and ensure consistent figures are used in the biological and water resources chapters. Update any resources analyses, including the construction air quality analysis and Table 4-2, as necessary.	The acreages expected to be disturbed have not changed. The various EIS sections have been checked for consistency of acreages described.	No change to Table 4-2 was necessary other than footnote described above. Updates or clarifications were made where necessary.
		Confirm whether the 50% dust control efficiency factor used in Appendix I (based on the use of water and other tackifiers) would apply to all acreages disturbed during the entire construction period. Discuss whether this assumption is applied equally in 2015 and 2016.	50% is the expected average efficiency for the entire construction period and was applied equally in the months in 2015 and 2016.	No change to EIS necessary
	F - 7	Provide, in the Final EIS, additional support for the assumption that no fugitive dust emissions would occur during project operations from other than access roads. Consider contacting facility managers and reviewing monitoring reports for other First Solar PV projects currently operating in Nevada and California to determine whether they have been successful at eliminating fugitive dust from under their solar arrays. Include a discussion on the success of dust palliatives to date at these facilities. Highlight in the air quality chapter any sensitive receptors that may be in close proximity to the project area. Include a map showing the proximity of nearby residences, schools and other potentially affected areas. If in close proximity, specify the means by which BIA would minimize impacts to sensitive receptors, such as children, the elderly, and the infirm, as applicable. For example, locate construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners, as applicable.	The lack of adjacent or nearby sensitive receptors in the area is described in the noise section and this information has been added to the discussion of fugitive dust.	This information was included in Section 4.6.2.1 of the FEIS.
	F - 8	Include, in the Final EIS, a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the project, based on U.S. Global Change Research Program[1] assessments, to assist with identification of potential project impacts that may be exacerbated by climate change and to inform consideration of measures to adapt to climate change impacts.	Section 3.2.2 of the DEIS discusses potential impacts from climate change. These changes would not be expected to have a direct effect on the Project as PV projects are designed to operate in a broad range of climatic conditions. At its core, the Project is designed to reduce overall GHG emissions by displacing non-renewable, carbon-based generation.	This information has been included in Section 4.2.2.1 of the FEIS.

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
		Considering that the project is planned to be in operation for up to 30 years, include, in the Final EIS, additional details on how climate change may affect the project, including the potential for increased storm flows through the site and to the Muddy River, the reclamation and restoration efforts after construction and decommissioning, and the potential impacts on sensitive species, including the desert tortoise.	The discussion within this comment has been added.	Section 4.2.2.1 has been revised in the FEIS.
		Consider, in the Final EIS, practicable changes to the proposal to make it more resilient to anticipated climate change, as appropriate.	Because of the nature of the Project and the site, no changes were made to the Proposed project.	No changes to EIS necessary
	F - 9	Provide, in the Final EIS, an update on the consultation process. Summarize and append any relevant documents associated with the ESA Section 7 consultation process, including the Biological Assessment and Biological Opinion.	The Final Biological Assessment (BA) and Biological Opinion (BO) are included in the FEIS. The final measures have been added to the FEIS.	The BO is included as Appendix O in the FEIS. The measures required in the BO have been added to Section 5.4 of the FEIS.
		Clarify, in Chapter 4.8.1.1.1 of the Final EIS, whether suitable lands are available or whether a previous reservation-wide management and conservation plan may be utilized that would provide sufficient compensatory lands for impacts to desert tortoise.	This information is included in the Final Biological Assessment (BA) and Biological Opinion (BO) that are included in the FEIS.	The BO is included as Appendix O in the FEIS.
		Include, in the Final EIS, any additional mitigation and monitoring measures that result from consultation with USFWS to protect sensitive biological resources, including desert tortoise, golden eagles and Moapa dace.	The Final Biological Assessment (BA), Biological Opinion (BO), and Bird and Bat Conservation Strategy (BBCS) that include mitigation measures are included in the FEIS.	These final documents are appended to the FEIS.
		Include, in the Final EIS, the latest findings and any appropriate adaptive management measures to respond to bird fatalities based on discussions with avian experts currently investigating bird fatalities at solar facilities in California, including the potential "lake effect", as appropriate.	Updated information on potential “lake effect” has been added.	Section 4.8.4.1.6.1 in the FEIS contains this updated information.
	F - 10	Provide, in the Final EIS, an update on consultation between the BIA and the tribal governments contacted to date.	Updated information on BIA’s consultation with tribes is included.	Section 4.9 has been updated in the FEIS.
		Discuss issues that were raised, how those issues were addressed in relation to the proposed project, and how impacts to tribal or cultural resources will be avoided or mitigated, consistent with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments,* Section 106 of the National Historic Preservation Act, and Executive Order 13007, *Indian Sacred Sites.*	Updated information on mitigation resulting from the 106 process is included.	Section 4.9 has been updated in the FEIS.
		Include in the Final EIS a draft of the Memorandum of Agreement (MOA) between the Moapa Tribe, BIA, the Bureau of Land Management and SHPO that would be required to define the steps to be taken to lessen, resolve, and/or mitigate the effects to the four historic properties identified as being adversely affected.	The MOA is included in the FEIS.	The MOA is included in **Appendix G** in the FEIS.

Aiya Solar Project FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) RESPONSES TO COMMENTS ON THE DRAFT EIS				
Commentor	**Comment ID**	**Comment Summary**	**Response**	**Location of Change in FEIS**
Roger Trott Environmental Scientist III – Socioeconomic Specialist Nevada Department of Transportation Environmental Services Division	G - 1	Table 1-4 (pg. 1-9), Anticipated Permits for the Proposed Project, should be modified to include the need for an occupancy permit from NDOT for any project activities in the SR 168 right-of-way.	The occupancy permit for activities within Highway 168 ROW has been added.	Table 1-4 was modified to reflect this addition.
	G - 2	The DEIS should be revised to provide additional detail concerning what types of improvements may be required for the SR 168 connections to the four project access roads, with a discussion of any potential effects on roadway operations during construction of the connections.	The improvements at these locations will be determined by NDOT through the permitting process. In addition to the traffic control and other measures described in the Traffic Control Plan (in Appendix M), improvements could include accel/decel lanes at the main site entrances, and others.	This information has been included in Section 2.2.5.2

Aiya Solar Project
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
RESPONSES TO ADDITIONAL EPA COMMENTS ON THE DRAFT EIS

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
Tom Plenys U.S. EPA, Region IX Environmental Review Section 75 Hawthorne Street, ENF-4-2 San Francisco, CA 94105	Additional Comments F-1	Thank you for forwarding the Army Corps of Engineers preliminary jurisdictional determination letter dated June 16, 2015 (to be included in Appendix F). We note the letter concurs with the amount and location of wetlands and/or other water bodies on the site as depicted in the May 4th Aiya Solar Project Jurisdictional Waters Report. Currently, the Waters Report differentiates between "potentially jurisdictional" and "non-jurisdictional" waters and bases its impact conclusions (Table 2, page 29) only on the "potentially jurisdictional" category. A landowner, permit applicant, or other "affected party" may elect to use a preliminary JD to voluntarily waive or set aside questions regarding CWA jurisdiction over a particular site, usually in the interest of allowing the landowner or other "affected party" to move ahead expeditiously to obtain a Corps permit authorization. For purposes of calculating impacts to waters, a preliminary JD assumes wetlands or other water bodies that exist on a particular site "may be" jurisdictional waters of the United States. A definitive, official determination that there are, or that there are not, jurisdictional "waters of the United States" on a site can only be made by an approved JD. In the absence of an approved JD, all identified "non-jurisdictional" waters in the Waters Report should also be assumed "potentially jurisdictional" (see Corps of Engineers, Regulatory Guidance Letter 08-02, Jurisdictional Determinations, dated June 26, 2008). Consequently, the calculated impacts to waters of the US may need to be clarified and updated in the body of the FEIS. We recommend that the FEIS provide a tabular breakdown of the total acres of waters for each drainage identified on site. The FEIS should also include a tabular summary of potential impacts to each drainage for the Aiya Solar Facility as well as the Aiya Gen-tie Line. Pending the result, impacts may be greater than the 0.5 acre impact threshold for the NWP 51 and the project may warrant an individual CWA 404 permit (see response to comment ID F – 4). The FEIS should discuss how the project proponent would ensure compliance with the Clean Water Act should the project require a CWA individual 404 permit. We also note that the preliminary JD letter highlights that 7,950 lineal feet of ephemeral waters are potential waters of the US. It is not clear where this lineal feet calculation came from and the Admin FEIS did not discuss potential impacts to waters in lineal feet. We recommend providing, in the FEIS, a breakout of the total lineal feet in the project area and lineal feet potentially impacted for each drainage.	In the Waters Report, the term "non-jurisdictional waterways" is used to describe drainage features that are erosional, lack ordinary high marks, or any other indications of regular water movement. The intent was to present these features where topography and aerial imagery suggest drainage could occur. Descriptions of these features support the delineation by providing additional detail at the uppermost reaches of jurisdictional waters where regular, organized flow is developing. The intent was not to propose a determination of non-jurisdiction for these features. By their very nature, these "non-jurisdictional waterways" lack ordinary high water marks, and therefore do not even meet the criteria to be considered a water of the US. In retrospect, better terminology would have precluded any confusion regarding these features. The ACOE Preliminary Jurisdictional Determination (PJD) dated June 16, 2015 identifies the "potentially jurisdictional" features presented in the Waters Report that are indeed jurisdictional. The 7,950 lineal feet was determined by the USACE. Impacts in the FEIS were calculated using all potential waters of the US, not a specific subset. A table will be added to the FEIS presenting impacts by individual washes. The ACOE also indicated that the solar facility, if impacts are less than ½ acre total, can be permitted under Nationwide Permit (NWP) 51 for land based renewable energy generation facilities, and that the utility line can be permitted under NWP 12 and covers impacts up to ½ acre per individual crossing. Impacts total 0.27 acres of ephemeral washes for the solar site, and another 0.05 acres for the gen-tie. As such, the Project intends to submit a Pre-Construction Notification for coverage under Nationwide Permit 51 and 12, as suggested by the ACOE and as indicated in the FEIS. The Waters Report was revised to reflect these comments, particularly to clarify the locations of potential waters of the US and erosional features. The revised report is included as Appendix F in the FEIS and will accompany the PCN for Clean Water Act permitting.	Table added to Section 4.5.3; revised waters report replacing old report in Appendix F; June 2015 jurisdictional determination letter added to Appendix F.

Aiya Solar Project
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
RESPONSES TO ADDITIONAL EPA COMMENTS ON THE DRAFT EIS

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
		Lastly, we note that the responses to our comments indicate that M06 "will be fully avoided by the project". It remains unclear how M06 will not be impacted by the proposed 1,500 foot by 50 foot drainage channel on the east central portion of the site. Map Book, page B3, of the Waters Report identifies the M06-B drainage channel as "potentially jurisdictional" and it appears the drainage channel may overlay directly on top of M06-B in this region. The FEIS should clarify how the drainage channel would have no direct or indirect impact to M06 in light of their potentially overlapping location, and/or quantify the extent to which M06-B will be filled or impacted by the construction of the drainage channel. Update the impact tables as needed.	The site plan (Figure 2-2 in the EIS) was revised subsequent to the version included in the DEIS. The updated version of the site plan does not include a drainage channel at M06 and this version was used to make the final calculations of potential impacts to waters. Therefore, the calculation of impacts were correct but was not consistent with Figure 2-2 in the DEIS. The updated site plan (without the drainage channel) is reflected in an updated version of Figure 2-2.	An update of Figure 2-2 is included in the Final EIS
		Our wetlands office has discussed the above issues with the St. George Office, Sacramento District of the Corps. The Corps intended to research the matter further on their end. We encourage further coordination with the Corps to help resolve these issues.	Additional coordination with the Corps has occurred and is continuing.	No additional change to EIS necessary
	Additional Comments F- 3	We note that the response to comments indicates that the quantities of flows through the site will be maintained. Chapter 4 of the Admin FEIS indicate that flows and velocities could increase slightly and that construction activities would likely have long-term adverse effects on the quality of local surface water flowing to the drainages downstream of the proposed project (pages 4-14 & 4-15). EPA remains concerned that due to the proposed drainage channels and the soils disturbance resulting from disk and roll or grading of the project site, flows and sediment transport to the Muddy River may change. Per our comments on the DEIS, we recommend that the FEIS discuss the monitoring protocols and the water quality thresholds specifically to be used to ensure the Muddy River is not further impaired due to the proposed project. We do note that annual inspections will be conducted as well as post-storm monitoring during construction; however, it is not clear to what extent, or how, impacts to the Muddy River will be monitored and potentially addressed.	Because of the relatively flat topography of the site, the low flow velocities both pre- and post-project, and the implementation of BMPs for erosion and sediment control both during construction and operation, the potential for sediment from the site to reach the Muddy River would be very low. As indicated in Section 5.2 of the EIS, weekly and post-storm monitoring of erosion and sedimentation would be conducted during construction, annual inspection of jurisdictional drainages receiving flows from the site will be conducted, and adaptive management would be employed to remedy instances of excessive erosion and sedimentation.	See Section 5.2 of the FEIS
	Additional Comments F- 5	We note the responses to comments indicate that break-away fencing and telescoping legs for the solar modules are not planned or proposed. It is not clear whether either technology was evaluated prior to being dismissed. It is our understanding that telescoping legs were proposed for the RES Americas project. We recommend discussing in the FEIS the feasibility of using such structures and whether such designs could reduce the need to disk and roll the site and maintain sufficient height over existing vegetation, preserve soil crusts and reduce fugitive dust.	The disk and roll method is proposed for site preparation to create a more safe work environment and to allow for vehicle access throughout the site both during construction and operation. During construction, it is important to eliminate trip hazards in areas where workers will be handling panels. During the operational phase of the project, access throughout the site is required for operational and maintenance activities and also for emergency services and fire control. The disk and roll method of site preparation ensures that these activities can be carried out safely. Consequently, the use of solar modules with telescoping legs would not eliminate the need for disk and roll methods.	No change to EIS proposed
		Similarly, we recommend discussing the feasibility of using break-away fencing and the potential benefits of maintaining storm flows. If break-away fencing is not to be used in areas most susceptible to storm flows, discuss the implications of sediment accumulation along the fence boundary and explain how downstream flows would not be affected.	Break-away fencing is not proposed because of the potential conflict is poses with the need to maintain desert-tortoise exclusion fencing in place. Inspection of the fence will take place after each significant storm event to not only remove any storm debris from the fence but also ensure the integrity of the tortoise fence.	No additional change to EIS necessary

Commentor	Comment ID	Comment Summary	Response	Location of Change in FEIS
		We appreciate the commitment to minimize grading to the greatest extent feasible. It does appear that the remainder of the site will be disk and rolled which would disrupt any desert pavement and crusts within the project area. We recommend discussing in the FEIS whether flat topography, less than a certain slope, could obviate the need to disk and roll and thereby preserve soil crusts and reduce fugitive dust etc. Consider incorporating such a design measure. We continue to recommend minimizing disturbance to soil crusts and natural drainages to the greatest extent feasible.	See response to F-5 above.	
		Finally, we note the vegetated areas in Figure 3-4. We recommend further consideration of preserving the natural drainages with xero-riparian vegetation with sufficient vegetated buffers to help address erosion concerns and maintain natural hydrology. These areas appear to include portions of drainages M04, M05 and M06.	As discussed in the response to F-1 above, the M06 drainage will be avoided. While portions of the vegetation in the other drainages would be affected by disk and roll site preparation, the vegetation would be expected to re-establish in many areas because the plant materials (roots, seeds) would be left in place and the natural drainage patterns that established this vegetation would be maintained.	

Appendix O

Biological Opinion

Attachment

Final Biological Opinion for the Aiya Solar Energy Project

Issued to:

Bureau of Indian Affairs
Western Regional Office
2600 N. Central Avenue, 4th Floor Mailroom
Phoenix, Arizona

Bureau of Land Management
Las Vegas Field Office
4701 North Torrey Pine Drive
Las Vegas, Nevada

by:

U.S. Fish and Wildlife Service
Southern Nevada Fish and Wildlife Office
4701 North Torrey Pine Drive
Las Vegas, Nevada

December 18, 2015

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CONSULTATION HISTORY

On October 7, 2014, the Service submitted an email to NewFields, the designated environmental consultant for the Biological Assessment (BA), requesting additional information on proposed surface water use for the project and potential effects to the Moapa dace (*Moapa coriacea*). NewFields responded by email on October 13, 2014, providing additional information on available flows, distance from habitat occupied by Moapa dace. The BLM of Indian Affairs (BIA) and Bureau of Land Management (BLM) determined that the anticipated use for the project will result in "no effect" for the Moapa dace. The Service agrees with a no effect determination for the project.

On April 1, 2015, we received the request from BIA and BLM dated March 30, 2015, to initiate formal consultation for the Aiya Solar Energy Project. The request included the BA documenting the likely effects of the project on desert tortoise. BIA also requested our concurrence through informal consultation that the proposed action *may affect, but is not likely to adversely affect* the threatened yellow-billed cuckoo (*Coccyzus americanus*), endangered Yuma clapper rail (*Rallus longirostris yumanensis*), or endangered Southwestern willow flycatcher (*Empidonax traillii extimus*). We reviewed the information in the BA and determined that additional information was required to initiate consultation. We submitted a memorandum to the BIA and the Moapa Band of Paiutes (Tribe) on May 6, 2015, identifying the additional information needed for the consultation.

On June 1, 2015, we met with the BIA, Tribe, and environmental consultants to discuss the additional information needs.

On June 8, 2015, we received a revised BA for the subject project. On June 22, 2015, we informed BIA and the Tribe by memorandum that the revised BA and information provided by the Tribe and environmental consultant subsequent to the June 1, 2015, meeting, was sufficient to initiate consultation for the proposed solar project effective June 8, 2015, if BIA or the Tribe provides two outstanding items identified in the memorandum by the end of June 2015.

On July 1, 2015, NewFields (an environmental consultant for the project) submitted an email to the Service providing modifications to the proposed minimization and mitigation measures.

On September 29, 2015, we received alignments for gen-tie lines and access roads, requested in the June 22 memorandum.

On October 19, 2015, we received an email from First Solar with correspondence from the Tribe indicating a draft work plan for tortoise conservation actions required in previous solar energy biological opinions had been prepared and work will commence when finalized and approved by the Service.

On November 4, 2015, we received and approved a work plan for 2015-2019 that will use remuneration fees collected for the Aiya and previous solar projects on the Moapa River Indian Reservation (Reservation).

The Service provided the agencies a draft Biological Opinion on December 18, 2015, and received comments on December 17.

DESCRIPTION OF PROPOSED ACTION

The BIA proposes to approve a lease of Tribal lands to the Applicant to construct, operate, maintain, and decommission the project, consisting of a photovoltaic (PV) solar power generating facility capable of generating up to 100 megawatts (MW) of electrical energy. The project site is located on approximately 647 acres of land on the Reservation, 15 acres of BLM land, and 10 acres of private land (Figure 1; BIA 2015). The BLM proposes to issue a right-of-way (ROW) to the Applicant to construct, operate, and maintain electric (gen-tie) lines to transport generated electricity to the grid. The project is located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1). Project components include onsite facilities, offsite facilities, and temporary facilities needed to construct the project. The solar site is located entirely on the Reservation. Major onsite facilities are the solar field comprised of multiple approximately 4 MW blocks of solar panels (block size may change with final design). The solar panels will be mounted on fixed tilt or tracking systems and associated equipment).

Temporary facilities, which would be removed at the end of the construction period, include the offsite water intake and pipeline; the onsite mobilization, laydown, and construction areas; and water storage tanks that would also be located on the Reservation. Power produced by the project would be conveyed to the Nevada power bulk transmission system via the gen-tie line, which would initially interconnect to NV Energy's existing 230-kilovolt (kV) Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy will build a proposed collector station near the existing Reid-Gardner Substation. NV Energy will determine the exact site of the collector station and construction timing.

Additional information on the proposed action can be found in the BA (NewFields 2015) and draft environmental impact statement (BIA 2015).

Onsite Facilities

Proposed onsite facilities include: the solar field, the onsite collection system, a 2-acre substation, a 10-acre operation and maintenance (O&M) area, internal project -related roads; site security and fencing; 10-foot-wide fire break; stormwater channels; and gen-tie line which continues offsite onto BLM land (Figure 2).

Stormwater channels approximately 50 feet wide would be lined with gabions, soil cement, or rip rap and built along the northeast corner and in the southeast portion of the solar field north of

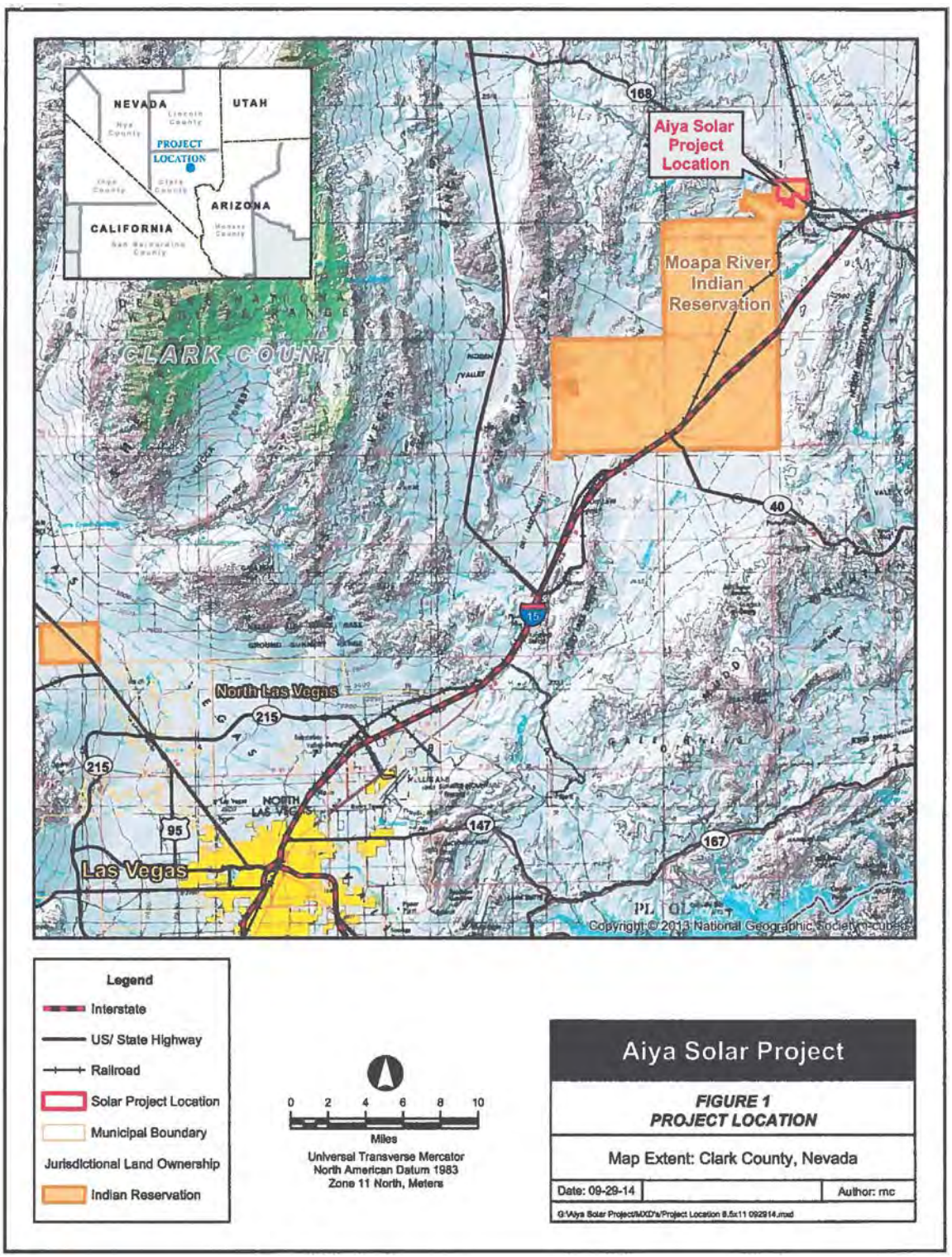

Figure 1: Aiya Solar Project Location

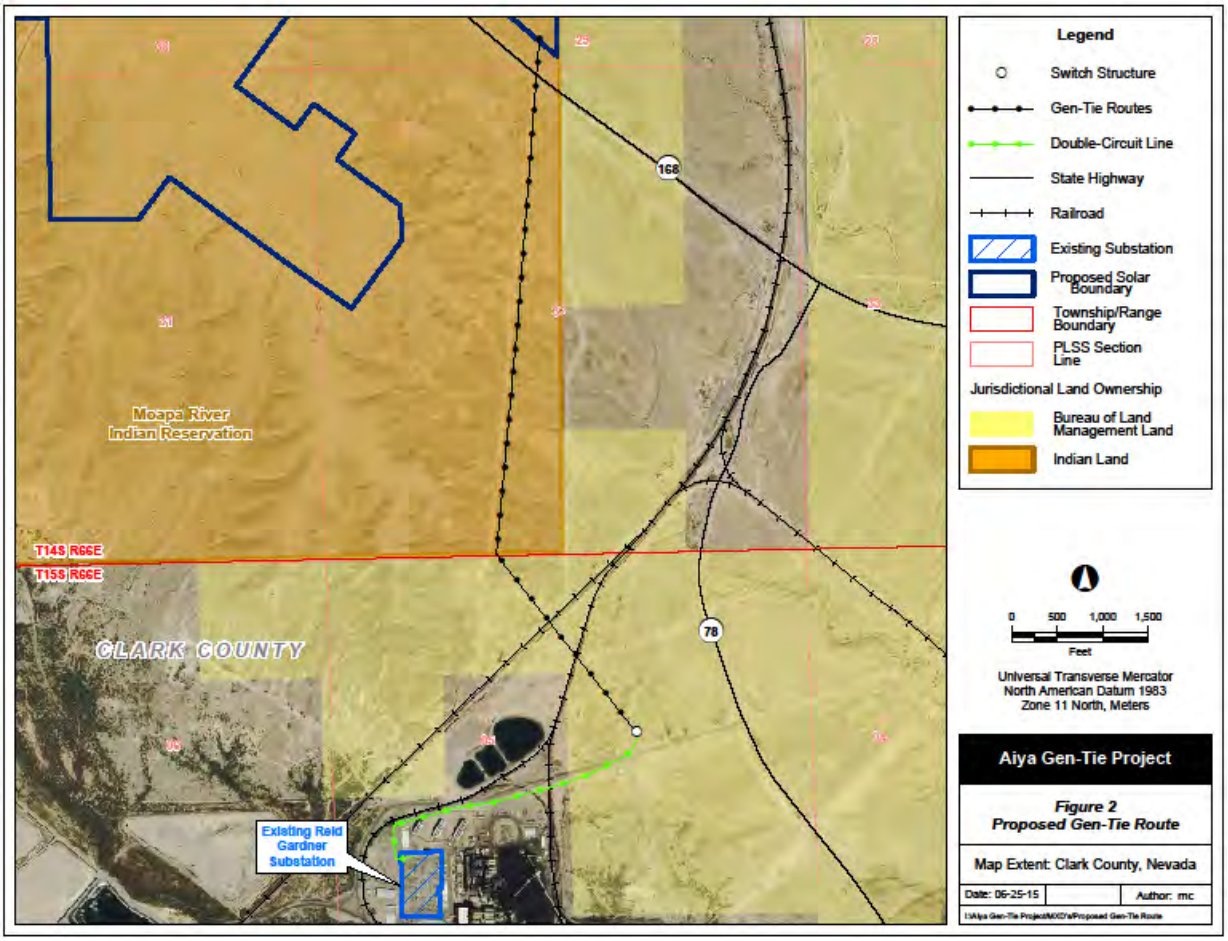

Figure 2: Proposed Gen-Tie Route

State Route 168 (SR 168). These channels would be approximately 3,000 feet and 1,500 feet long respectively and they would redirect water flow disturbed by the solar field back to their respective existing washes. In addition to the channels, culverts would be installed in the proposed landscaped berms to be constructed parallel to both sides of Reservation Road but outside the road ROW so the berms do not alter the flow of stormwater through the site. Any necessary repairs or modifications to the existing culverts under Reservation Road would be made during the construction of the solar field.

The site would be allowed to re-vegetate following construction. Vegetation would be maintained to a height of no more than approximately 12 inches as needed for site maintenance and fire-risk management using mechanical and chemical controls. Project roads and the O&M area would remain free of vegetation.

Earthen mounds would be constructed along portions of the north and south sides of Reservation Road outside the road ROW to mitigate the potential visual impact of the solar array as seen

while driving along Reservation Road. The height of the berm would be less than 10 feet tall and they would be landscaped with low-profile, low-water, native vegetation.

Permanent lighting would be provided within the O&M area, the substation, and at the project entrance gate. Construction may be required during some nighttime periods for installation, service or electrical connection, inspection, and testing activities. Nighttime activities would be performed with temporary lighting. Night lighting used during construction, operation, and maintenance of the project would be controlled or reduced using directed lighting, shielding, and/or reduced lumen intensity. The Applicant would prepare a Lighting Management Plan for construction and operation of the project.

Wastewater generated during construction and operation would include sanitary waste, storm water runoff, and water from excavation dewatering during construction (if dewatering is required). These wastewaters may be classified as hazardous or nonhazardous, depending on their chemical quality, and handled and disposed of in accordance with applicable law.

Offsite Facilities

The project would require the construction of a 230-kV gen-tie line approximately 2-miles long for interconnection to the utility transmission grid system. The proposed gen-tie route would proceed south from one of two potential locations for the solar facility project substation on the Reservation then cross up to 1.2 miles of Tribal land where it would enter Federal lands managed by the BLM. The route would then cross southeasterly to a point northeast of the existing Reid-Gardner Substation where a new NV Energy collector station would be built in the future. Initially, the gen-tie line would pass through this location and be built directly to the existing Reid-Gardner Substation. There would be a dead-end structure constructed just north of the two proposed sites for the collector station where the gen-tie line would change ownership between the project and NV Energy. Once enough generation comes online to justify the construction of the collector station, NV Energy would construct a collector station on the location. At that time the gen-tie (both the portion from the project site and the portion to Reid-Gardner) would be connected to the collector station. The route on BLM lands would be approximately 0.7 mile long.

Additional offsite facilities include short access roads to connect the project to the nearby existing road infrastructure; a temporary intake in the Muddy River and corresponding water delivery pipeline, and electric distribution and communication lines, all of which would be located on the Reservation.

Operation and Maintenance

All O&M personal will receive worker environmental awareness training to be able to identify tortoises and avoid impacts to tortoises during maintenance activities. Operation of the project would require a workforce of up to 5 full time-equivalent positions. This workforce would

include administrative and management personnel, operators, security, and maintenance personnel. Employees would be based at the O&M building.

Maintenance of the project facilities outside of the fenced ROW would mainly consist of inspecting the transmission line, access roads, and site fencing. Inspections for each of these elements would include and take place as follows:

- Overhead transmission lines will be inspected annually and after heavy rains. Components to be inspected include guy wires, tower angles, supporters, insulators, and terminations.
- Roadways will be inspected annually and after heavy rains for erosion damage.
- Tortoise fence will be inspected after heavy rains and periodically as described in this Biological Opinion. Tortoise fence inspection will be completed from the perimeter road inside of the fenced ROW.

Decommissioning

The useful life of the solar equipment would be approximately 30 years and the possibility of subsequent repowering could extend the useful life up to 50 years. After the life of the project, the site would be decommissioned and existing facilities and equipment would be removed.

Project decommissioning would involve removal of the solar arrays and other facilities, with some buried components potentially remaining in place. Project components inside the fenced ROW would be removed prior to removal of the tortoise fencing. Following decommissioning, the area would be reclaimed and restored according to applicable regulations at the time of decommissioning.

To ensure that the permanent closure of the facility does not have an adverse effect, the Applicant would prepare a Decommissioning Plan. The Decommissioning Plan would be developed in coordination with the Tribe and BIA, with input from other agencies as appropriate. The plan would address future land use, removal of hazardous materials, impacts and mitigation associated with closure activities, schedule of closure activities, equipment to remain on the site, and conformance with applicable regulatory requirements and resource plans. Removal and recycling of the PV modules would be done in accordance with the Applicant's module recycling program. Decommissioning would be consistent with requirements and goals set forth in the Rehabilitation Plan.

Proposed Minimization Measures and Fees

The proposed measures to minimize potential effects to the desert tortoises due to project construction, operation, maintenance, and decommissioning are provided below.

Minimization or Conservation Measures

1. **Construction area flagging**. The ROW boundaries will be flagged prior to beginning construction activities and disturbance confined to the ROW. A biological monitor will escort all survey and geotechnical crews on site prior to tortoise-proof fence construction. All survey and geotechnical crew vehicles will remain on existing roads and stay within the flagged areas to the maximum extent practicable. In cases where construction vehicles are required to travel off existing roads, a biological monitor (on foot) will precede the vehicles.

2. **Desert tortoise fencing**. Tortoise-proof fencing will be installed around the boundary of the solar facility. Biological monitors or biologists approved to handle and relocate tortoises will be present during fence installation to relocate all tortoises in harm's way to outside the permitted ROW. Additional clearance surveys and activities will be conducted after completion of the tortoise fence to ensure that no tortoises remain fenced inside the construction boundaries.

   To reduce traffic mortality risk to tortoises that could occur near the segment of SR 168 that bisects the project and to maintain habitat connectivity, the Applicant will prepare a fencing/culvert plan for Service review. The Service would approve the location and numbers of culverts and placement of fencing prior to commencement of project construction. Culverts will be designed and sufficiently sized to allow desert tortoise use.

   Fence specifications will be consistent with those approved by the Service (Service 2009). Tortoise guards will be placed at all road access points where desert tortoise-proof fencing is interrupted to exclude desert tortoises from the project footprint. Gates or tortoise exclusion guards will be installed with minimal ground clearance and shall deter ingress by desert tortoises. Permanent tortoise-proof fencing along the project area will be appropriately constructed, monitored, and maintained as designated in the Desert Tortoise Field Manual (Service 2009). Monitoring and maintenance will include regular removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the subsurface portion of the fence if exposed.

   One-way Gates. At least three one-way gates will be installed in the desert tortoise fencing to allow tortoises to exit the site and prevent reentry. The rationale is that tortoises have been found inside the fenced and cleared areas on other projects. The gates will be made of metal and adjusted so the door swings only open into the non-project habitat side. The Arizona Game and Fish Department evaluated this technology and found that a design based on badger gates used in Spain showed the most promise. These swing-style badger gates have small, hinged doors inserted in wildlife fencing at ground level and were the only style of gate identified that is specifically designed for smaller mammals (Caltrans 2014) and are expected to serve desert tortoise as well. The gates will be inspected at least weekly during construction because this type of gate requires

periodic maintenance to ensure that it is swinging freely and is unobstructed by debris or vegetation. A concrete or otherwise impervious slab will be installed beneath each gate to help prevent plant growth impeding the swing of the gate and to reduce maintenance needs. The gates will be removed and replaced with desert tortoise-proof fencing after installation of the solar panels is complete.

A remote motion-activated camera will be installed at each gate to evaluate wildlife use of the gates. This is a relatively inexpensive and passive way to track the use by desert tortoise and other species. Cameras would be employed during the first two desert tortoise active periods following completion of tortoise fence construction. Data retrieval, camera checks and maintenance, and battery checks/replacement will occur weekly. Camera use during December through February is not warranted.

3. **Field Contact Representative**. The BIA and Applicant will designate a Field Contact Representative (FCR) who will be responsible for overseeing compliance with this Biological Opinion. The FCR will be onsite during all active construction activities that could result in the "take" of a desert tortoise. The FCR will have the authority to briefly halt activities that are in violation of the desert tortoise protective measures until the situation is remedied.

4. **Authorized desert tortoise biologist**. All authorized desert tortoise biologists (and monitors) are agents of BIA and Service and will report directly to BIA, Service, BLM, and Applicant concurrently regarding all compliance issues and take of desert tortoises; this includes all draft and final reports of non-compliance or take. Authorized desert tortoise biologists, monitors, and the FCR will be responsible for ensuring compliance with all conservation measures for the project. Potential authorized desert tortoise biologists will submit their statement of qualifications to the Service.

   An authorized desert tortoise biologist will record each observation of desert tortoise handled in the tortoise monitoring reports. This information will be provided directly to BIA, Service, and BLM.

5. **Biological monitoring**. Under supervision of an authorized biologist, biological monitors will be present at all active construction locations (not including the solar field after it has been fenced with desert tortoise fencing and clearance surveys have been completed). Authorized desert tortoise biologists will survey the construction area to ensure that no tortoises are in harm's way; provide oversight to ensure proper implementation of protective measures; record and report desert tortoise and tortoise sign observations in accordance with approved protocol; select and supervise biological monitors; and report incidents of noncompliance in accordance with the BO and other relevant permits. If a tortoise is observed entering the construction zone work in the immediate vicinity will cease until the tortoise moves out of the area. Tortoises found above ground during construction activities will be moved offsite by an authorized biologist.

Temporary tortoise-proof fencing could be installed at the discretion of the Applicant to partition the site to allow construction prior to completion of the clearance surveys. Installation of the temporary fencing would be monitored as described above. This could be implemented for various reasons including, though not limited to, allowing the move on of construction trailers and establishing staging or parking areas.

An authorized desert tortoise biologist or biological monitor will inspect areas to be backfilled immediately prior to backfilling

6. **Desert tortoise clearance surveys and relocation**. After installation of tortoise fencing around the perimeter of the solar facility and prior to surface-disturbing activities, authorized desert tortoise biologists assisted by monitors will conduct a clearance survey to locate all desert tortoises in the solar field, using techniques that provide full coverage of construction zones (Service 2009). Treatment of tortoises will occur as follows:

   - Tortoises greater than 100 mm will be health assessed, telemetered, and left *in situ* until total number is determined. Telemetered tortoise shall be located weekly while *in situ*. A health assessment will be performed on each tortoise; no biological samples are required. Juveniles less than 100 mm will not be telemetered but health assessed and held in quarantine pens until they can be moved with the larger tortoises to the release sites. Captive husbandry of tortoises held in pens shall follow protocols provided by the Service.
   - Released tortoises should be monitored until the Authorized Biologist determines they are sheltering appropriately; long-term monitoring is not required for the number of tortoises expected to be found.
   - If more than 12 adult tortoises are found that require capture and movement, BIA and BLM will contact the Service and require reinitiation of consultation.

   The relocation (12 or fewer tortoises) will adhere to the following:

   - Tortoises found in the ROW within 500 meters of the project boundary will be relocated outside of the ROW to suitable habitat on either Tribal or Federal lands with written permission of the land manager or owner (email is sufficient). Tortoises will be released as far as practicable from unfenced SR 168. The area on Tribal lands south and east of the project boundaries is the priority destination.
   - Shade structures shall be installed along the perimeter fence along sections where tortoises were released in coordination with the Service. The shelters will be designed and installed to provide shelter for both small and large tortoises. The shelters will be installed at approximately 1,000-foot intervals (or as approved by the Service), with one smaller sized shelter placed in between each larger shelter in order to provide additional locations for subadults and juveniles. Shelters will be made from either PVC tubes or similar material with a diameter of 14 inches or greater for

the larger shelters and 6-8 inches for the smaller ones. Tubes should be cut into 2-3 foot length and cut horizontally. Each shade structure would be partially buried to keep them from being blown away and to assist with thermoregulation within the shelter. During all fence monitoring, these structures will be inspected for their effectiveness and adjusted as needed to increase their effectiveness. These inspections will continue until either no tortoises are found consistently walking the fence during an entire active season or until the end of the project's construction period, whichever is earlier.

- The Service would be contacted to determine the disposition of tortoises (if any) that require movement of more than 500 meters from point of capture. The Service will direct disposition of those animals taking into consideration the distance to be moved, the suitability of nearest habitat, and the observed health condition of the animal. The Service would then determine the best option for disposition.
- An authorized biologist approved by the Service to perform health assessments will perform a physical health assessment on each tortoise prior to release. Only healthy animals may be released.
- Tortoises excavated from burrows will be relocated to unoccupied natural or artificially constructed burrows immediately following excavation in accordance with the Service guidelines and temperature limits. The constructed or unoccupied natural burrows will be as close to the existing burrow as feasible. The authorized biologist (using criteria of habitat suitability and soil friability) will determine approximately where each tortoise will be moved prior to its capture.
- The authorized biologist will exercise judgment and discretion to ensure that survival of the desert tortoise is likely, such as administering fluids, providing additional shelter, or briefly holding the animal for a longer observation period.
- If a tortoise voids its bladder while being handled, it will be given the opportunity to rehydrate before release. Tortoises will be offered fluids by soaking in a shallow bath, or an authorized desert tortoise biologist will administer nasal-oral fluid, or injectable epicoelomic fluids. Any tortoise hydration support beyond offering water or shallow soaking would only be provided by an authorized biologist who has received advanced training in health assessments and been specifically approved by the Service for these procedures.
- No surface-disturbing activities shall begin until two consecutive surveys find no live tortoises. In sectors or zones where a live tortoise is found, surveys will be repeated until the two-pass standard is met.
- An authorized biologist will supervise the excavation of burrows potentially containing desert tortoises located in the area to be disturbed with the goal of locating and removing all desert tortoises and desert tortoise eggs. Clearance will include evaluation of caliche caves and dens, as tortoises are known to shelter there. The practice of excavating every burrow (sometimes referred to as "rat holing") will not

be used as it has shown to be ineffective and inefficient in locating tortoises. During clearance surveys, all handling of desert tortoises and their eggs, and excavation of burrows shall be conducted solely by an authorized desert tortoise biologist or monitor supervised by the biologist in accordance with the most current Service-approved guidance (Service 2009). If any active tortoise nests are encountered, the Service must be contacted immediately prior to removal of any tortoises or eggs from those burrows to determine the most appropriate course of action. Unoccupied burrows will be collapsed or completely backfilled to prevent desert tortoise entry. Outside construction work areas, all potential desert tortoise burrows and pallets within 50 feet of the edge of the construction work area will be flagged. If a desert tortoise occupies a burrow during the less-active season, the tortoise will be temporarily penned if approved by the Service. No stakes or flagging will be placed on the berm or in the opening of a desert tortoise burrow. Desert tortoise burrows will not be marked in a manner that facilitates poaching. Avoidance flagging will be designed to be easily distinguished from access route or other flagging, and will be designed in consultation with experienced construction personnel and authorized biologists. This flagging will be removed following construction completion.

- Burrows with the potential to be occupied by tortoises within the construction area will be searched for presence of tortoises. In some cases, a camera or fiber-optic scope will be used to determine presence or absence within a deep burrow. If burrows inhabited by tortoises are found in the construction area where a transmission pole is to be placed, the transmission line pole location will be shifted to avoid the burrow. Only if it is not possible to shift the transmission line pole, the tortoise will be excavated using hand tools by an authorized biologist.

7. **Weed Management Plan**. Prior to construction, a Weed Management Plan will be developed that includes measures designed to reduce the propagation and spread of designated noxious weeds, undesirable plants, and invasive plant species, or as determined by the agencies (BIA, BLM, etc.) in coordination with the Tribe. Measures in the plan will include, but are not limited to the following:

   - Areas with weeds will be mapped. Topsoil with the presence of weeds will not be salvaged and reused elsewhere in the project. The topsoil from such areas will be disposed of properly.
   - Inspect heavy equipment for weed seeds before they enter the project area. Require that such equipment be cleaned first to remove weed seeds before being allowed entry. Clean equipment that has been used in weed-infested areas before moving it to another area.
   - Any straw or hay wattles are used for erosion control must be certified weed free.

8. **Worker environmental awareness training**. Worker environmental awareness training will be presented to all personnel onsite during construction. This program will contain information concerning the biology and distribution of the desert tortoise, desert tortoise

activity patterns, and its legal status and occurrence in the proposed project area. The program will also discuss the definition of "take" and its associated penalties, measures designed to minimize the effects of construction activities, the means by which employees limit impacts, and reporting requirements to be implemented when tortoises are encountered. Personnel will be instructed to check under vehicles before moving them as tortoises often seek shelter under parked vehicles. Personnel will also be instructed on the required procedures if a desert tortoise is encountered or observed within the proposed project area. Worker environmental awareness training will be mandatory, as such, workers will be required to sign in and wear a sticker on their hardhat to signify that they have received the training and agree to comply. This training may be presented in person by a biologist or via a video of a biologist presenting the information.

9. **Access roads**. Construction access will be limited to the project ROW and established access roads as defined in this project description.

10. **Speed limits and signage**. Until the desert tortoise fence has been constructed, a speed limit of 15 miles per hour will be maintained during the periods of highest tortoise activity (March 1 through November 1) and a limit of 25 mph during periods of lower tortoise activity. This will reduce dust and allow for observation of tortoises in the road. Speed-limit and caution signs will be installed along access roads and service roads. After the tortoise-proof fence is installed and the tortoise clearance surveys are complete, speed limits within the fenced and cleared areas will be established by the construction contractor and based on surface conditions and safety considerations and remain with limits established by the Service.

11. **Trash and litter control**. Trash and food items will be disposed properly in predator proof containers with resealing lids. Trash will be emptied and removed from the project site on a periodic basis as they become full. Trash removal reduces the attractiveness of the area to opportunistic predators such as ravens, coyotes, and foxes.

12. **Raven and raptor control**. The Applicant will implement the Raven Management Plan (BLM 2014) to be provided by the BLM. The Applicant will inspect structures annually for nesting ravens and other predatory birds and report observations of nests to the Service, BLM, and BIA. Transmission line support structures and other facility structures will be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current guidelines (Avian Power Line Interaction Committee 2006). In addition to increasing desert tortoise protection, following these guidelines during transmission line construction will reduce the possibility of avian electrocution and other hazards.

13. **Overnight hazards**. No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) will be left unfenced or uncovered; such hazards will be eliminated each day prior to the work crew and monitoring biologists leaving the

site. All excavations will be inspected for trapped desert tortoises at the beginning, middle, and end of the workday, at a minimum, but will also be continuously monitored by a biological monitor or authorized biologist. Should a tortoise become entrapped, the authorized biologist will remove it immediately.

14. **Blasting**. If blasting is required in desert tortoise habitat, detonation will only occur after the area has been surveyed and cleared by an authorized desert tortoise biologist no more than 24 hours prior. A 200-foot radius buffer area around the blasting site will be surveyed and all desert tortoises above ground within this 200-foot buffer of the blasting site will be moved at least 500 feet from the blasting site, placed in unoccupied burrows, and temporarily penned to prevent tortoises that have been temporarily relocated from returning to the site. Tortoises located outside of the immediate blast zone and that are within burrows will be left in their burrows. All burrows within the 200-foot buffer, regardless of occupied status, will be stuffed with newspapers, flagged, and location recorded using a global positioning system (GPS) unit. Immediately after blasting, newspaper and flagging will be removed. If a burrow or cover site has collapsed that could be occupied, it will be excavated to ensure that no tortoises have been buried and are in danger of suffocation. Tortoise removed from the blast zone will be returned to their burrow if it is intact or placed in a similar unoccupied or constructed burrow.

15. **Penning**. Penning must be approved by the Service prior to pen construction. Penning will be accomplished by installing a circular fence, approximately 20-foot in diameter to enclose and surround the tortoise burrow. The pen will be constructed with 1-inch horizontal by 2-inch vertical, galvanized welded 16-guage wire. Steel T-posts or rebar will be placed every 5 to 6-feet to support the pen material. Pen material will extend 18 to 24 inches above ground. The bottom of the enclosure will be buried 6 to 12 inches or bent towards the burrow, have soils mounded along the base, and other measures implemented to ensure zero ground clearance. Care will be taken to minimize visibility of the pen by the public. An authorized desert tortoise biologist or desert tortoise monitor will check the pen at least daily or at the frequency established by the Service to ensure that the desert tortoise is secure and not stressed. No desert tortoise will be penned for more than 48 hours without written approval by the Service. Because this is a relatively new technique, all instances of penning or issues associated with penning will be reported to the Service by phone and email within 24 hours by an authorized biologist.

16. **Stormwater Pollution Prevention Plan**. The applicant will oversee the establishment and functionality of sediment control devices as outlined in the stormwater pollution prevention plan.

Operation and Maintenance Minimization Measures

The following minimization measures will be implemented during O&M (i.e., inspection and repair) of the proposed action to reduce effects on the desert tortoise and other species:

17. **Worker environmental awareness training**. Worker environmental awareness training will be required for all maintenance and operation staff for the duration of the project. In addition to an overview of minimization measures, the training will include specific best management practices designed to reduce effects to the desert tortoise.

18. **Desert tortoise fence inspections.** Desert tortoise fencing will be inspected weekly during periods of high tortoise activity (April 1 – May 31 and September 1 – October 31), every 2 weeks during the rest of the year through decommissioning and after storm events to ensure that the fence is intact, and that desert tortoises cannot enter the solar facility site.

19. **Biological Monitoring**. An authorized desert tortoise biologist or biological monitor(s) will be present during ground-disturbing and/or off-road operation and maintenance activities outside of the fenced solar facility to ensure that no tortoises are in harm's way. Tortoises found above ground during operation and maintenance activities will be avoided or moved by an authorized biologist, if necessary. Pre-maintenance clearance surveys followed by temporary exclusionary fencing also will be required if the maintenance action requires ground or vegetation disturbance. A biological monitor will flag the boundaries of areas where activities would need to be restricted to protect tortoises and their habitat. Restricted areas will be monitored to ensure their protection during construction.

20. **Speed Limits**. Speed limits within the project area, along transmission line routes, and access roads will be restricted to less than 25 mph during operation and maintenance.

Compensatory Mitigation

The applicant will pay the following required compensatory mitigation requirement:

21. **Habitat compensation**. Prior to surface disturbance activities within desert tortoise habitat, the Applicant will pay a one-time remuneration fee (per acre of proposed disturbance).

    The Applicant shall pay remuneration fees to offset residual impacts to desert tortoises from project- related disturbance to desert tortoise habitat. The Tribe shall prepare annual work plans for conservation actions to be funded and performed in the following year. Work plans for 2015-2019 are provided in Appendix A. These work plans and conservation actions must be approved in advance by the Service. Remuneration fees for habitat disturbance on Tribal lands will be paid by the Applicant directly to the National Fish and Wildlife Foundation for the Tribe. These fees cannot be used to implement or supplement minimization measures required in the Biological Opinion. Conservation actions proposed for funding should be based on the Reservation-wide Conservation Plan. Administrative costs of the account shall be paid by the Applicant. Because

administrative fees are assessed annually, conservation actions should be funded as soon as possible.

Fees for disturbance of BLM land will be paid at the same rate as Tribal fees, but paid directly to the BLM. Fees for disturbance of private land will be paid at the rate of $550 per acre to the Clark County Desert Conservation Fund.

The current base rate for Tribal and BLM land disturbance is $843 per acre of disturbance, as indexed for inflation, effective March 1, 2015, until the next adjustment becomes effective March 1, 2016. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under this biological opinion will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at http://www.bls.gov/cpi/.

The Applicant shall complete the attached form (Appendix B) and submit it to the Service's Southern Nevada Fish and Wildlife office, by one of the methods below.

Email: Michael_senn@fws.gov

Postal Mail: Field Supervisor
Southern Nevada Fish and Wildlife Office
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130

Fax: (702) 515-5231

Once received and approved by the Service, the Applicant will be notified. Following notification, the Applicant will coordinate actual payment with the National Fish and Wildlife Foundation (NFWF) through:

Shawn Marchand (Shawn.Marchand@NFWF.ORG) and/or
Anne Butterfield (Anne.Butterfield@NFWF.ORG).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 Code of Federal Regulations [CFR] §402.02).

The jeopardy analysis in this Biological Opinion relies on four components:

1. The status of the species, which describes the range-wide condition of the desert tortoise, the factors responsible for that condition, and its survival and recovery needs;
2. The environmental baseline, which analyzes the condition of the desert tortoise in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species;
3. The effects of the action, which determine the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the desert tortoise and its designated critical habitat; and
4. The cumulative effects, which evaluates the effects of future, non-Federal activities in the action area on the desert tortoise.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the range-wide status of the desert tortoise, taking into account any cumulative effects in the action area, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the desert tortoise in the wild. For the purposes of making the jeopardy determination, the analysis in this Biological Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery of the desert tortoise as the context for evaluating the significance of the effects of the proposed Federal action, together with cumulative effects.

Section 7(a)(2) of the Act also requires that Federal agencies ensure that any action they authorize, fund, or carry out does not result in the destruction or adverse modification of designated critical habitat.

STATUS OF THE DESERT TORTOISE RANGE-WIDE

The Service listed the desert tortoise as threatened in 1990 (55 Federal Register 12178). The threats described in the listing rule and both recovery plans continue to affect the species. The most apparent threats to the desert tortoise are those that result in mortality and permanent habitat loss across large areas, such as urbanization and large-scale renewable energy projects; and those that fragment and degrade habitats, such as proliferation of roads and highways, off-highway vehicle activity, and habitat invasion by non-native invasive plant species.

We remain unable to quantify how threats affect desert tortoise populations. The assessment of the original recovery plan emphasized the need for a better understanding of the implications of multiple, simultaneous threats facing desert tortoise populations and of the relative contribution of multiple threats on demographic factors (i.e., birth rate, survivorship, fecundity, and death rate; Tracy et al. 2004).

In recognition of the absence of specific and recent information on the location of habitable areas of the Mojave Desert, especially at the outer edges of this area, Nussear et al. (2009) developed a quantitative, spatial habitat model for the desert tortoise north and west of the Colorado River that incorporates environmental variables such as precipitation, geology, vegetation, and slope and is based on occurrence data of desert tortoises from sources spanning more than 80 years, including data from the 2001 to 2005 range-wide monitoring surveys. The model predicts the probability that desert tortoises will be present in any given location; calculations of the amount of desert tortoise habitat in the 5-year review and in this biological opinion use a threshold of 0.5 or greater predicted value for potential desert tortoise habitat. The model does not account for anthropogenic effects to habitat and represents the potential for occupancy by desert tortoises absent these effects.

To understand better the relationship of threats to populations of desert tortoises and the most effective manner to implement recovery actions, the Desert Tortoise Recovery Office developed a spatial decision support system that models the interrelationships of threats to desert tortoises and how those threats affect population change. The spatial decision support system describes the numerous threats that desert tortoises face, explains how these threats interact to affect individual animals and habitat, and how these effects in turn bring about changes in populations. For example, we have long known that the construction of a transmission line can result in the death of desert tortoises and loss of habitat. We have also known that common ravens, known predators of desert tortoises, use the transmission line's pylons for nesting, roosting, and perching and that the access routes associated with transmission lines provide a vector for the introduction and spread of invasive weeds and facilitate increased human access into an area. Increased human access can accelerate illegal collection and release of desert tortoises and their deliberate maiming and killing, as well as facilitate the spread of other threats associated with human presence, such as vehicle use, garbage and dumping, and invasive plants (Service 2011). Changes in the abundance of native plants because of invasive weeds can compromise the physiological health of desert tortoises, making them more vulnerable to drought, disease, and predation. The spatial decision support system allows us to map threats across the range of the desert tortoise and model the intensity of stresses that these multiple and combined threats place on desert tortoise populations.

The following map depicts the 12 critical habitat units of the desert tortoise, linkages between conservation areas for the desert tortoise and the aggregate stress that multiple, synergistic threats place on desert tortoise populations, as modeled by the spatial decision support system. Conservation areas include designated critical habitat and other lands managed for the long-term conservation of the desert tortoise (e.g., the Desert Tortoise Natural Area, Joshua Tree National Park, and the Desert National Wildlife Refuge).

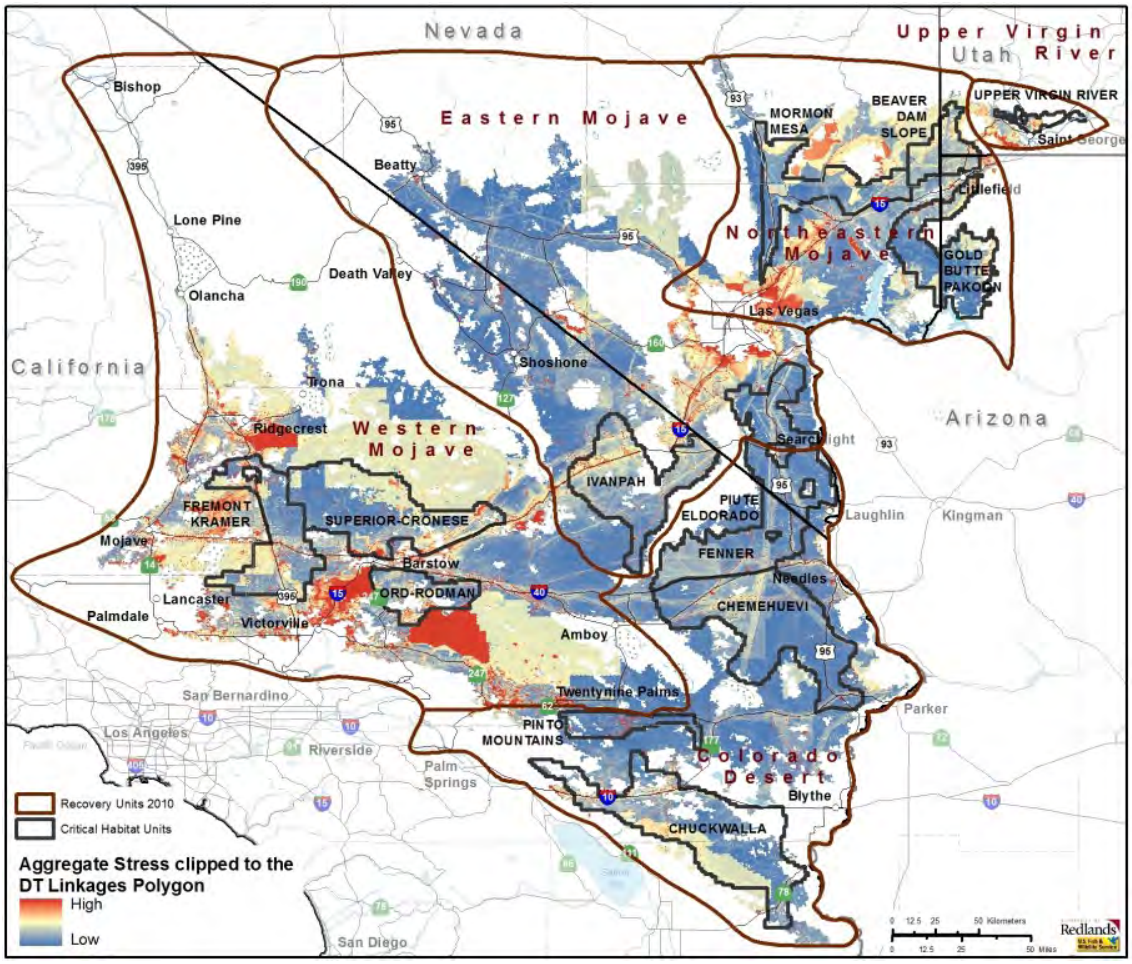

Figure 3: Critical habitat units of the desert tortoise, linkages between conservation areas for the desert tortoise, and the aggregate stress that multiple, synergistic threats place on desert tortoise populations.

Recovery Plan

The Service (1994, 2011) has issued an initial recovery plan and revised recovery plans for the desert tortoise. The revised recovery plan for the desert tortoise (Service 2011) lists three objectives and associated criteria to achieve delisting. The first objective is to maintain self-sustaining populations of desert tortoises within each recovery unit into the future; the criterion is that the rates of population change (λ) for desert tortoises are increasing (i.e., $\lambda > 1$) over at least 25 years (i.e., a single generation), as measured by extensive, range-wide monitoring across conservation areas within each recovery unit, and by direct monitoring and estimation of vital rates (recruitment, survival) from demographic study areas within each recovery unit.

The second objective addresses the distribution of desert tortoises. The goal is to maintain well-distributed populations of desert tortoises throughout each recovery unit; the criterion is that the distribution of desert tortoises throughout each conservation area increase over at least 25 years.

The final objective is to ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations. The criterion is that the quantity of desert tortoise habitat within each conservation area be maintained with no net loss until population viability is ensured.

The revised recovery plan (Service 2011) also recommends connecting blocks of desert tortoise habitat, such critical habitat units and other important areas to maintain gene flow between populations. Linkages defined using least-cost path analysis (Averill-Murray et al. 2013) illustrate a minimum connection of habitat for desert tortoises between blocks of habitat and represent priority areas for conservation of population connectivity. This map illustrates that, across the range, desert tortoises in areas under the highest level of conservation management remain subject to numerous threats, stresses, and mortality sources.

Five-Year Review

Section 4(c)(2) of the Endangered Species Act requires the Service to conduct a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether the species' status has changed since it was listed (or since the most recent 5-year review); these reviews, at the time of their completion, provide the most up-to-date information on the range-wide status of the species. For this reason, we are incorporating the 5-year review of the status of the desert tortoise (Service 2010a) into this Biological Opinion. The following paragraphs provide a summary of the relevant information in the 5-year review. The complete 5-year review can be found at the following website:

http://ecos.fws.gov/docs/five_year_review/doc3572.DT%205Year%20Review_FINAL.pdf

In the 5-year review, the Service discusses the status of the desert tortoise as a single distinct population segment and provides information on the Federal Register notices that resulted in its listing and the designation of critical habitat. The Service also describes the desert tortoise's ecology, life history, spatial distribution, abundance, habitats, and the threats that led to its listing (i.e., the five-factor analysis required by section 4(a)(1) of the Endangered Species Act). In the 5-year review, the Service concluded by recommending that the status of the desert tortoise as a threatened species be maintained.

With regard to the status of the desert tortoise as a distinct population segment, the Service concluded in the 5-year review that the recovery units recognized in the original and revised recovery plans (Service 1994 and 2011, respectively) do not qualify as distinct population segments under the Service's distinct population segment policy (61 Federal Register 4722; February 7, 1996). We reached this conclusion because individuals of the listed taxon occupy habitat that is relatively continuously distributed, exhibit genetic differentiation that is consistent with isolation-by-distance in a continuous-distribution model of gene flow, and likely vary in behavioral and physiological characteristics across the area they occupy as a result of the transitional nature of, or environmental gradations between, the described subdivisions of the Mojave and Colorado deserts.

In the 5-year review, the Service summarizes information with regard to the desert tortoise's ecology and life history. Of key importance to assessing threats to the species and to developing and implementing a strategy for recovery is that desert tortoises are long lived, require up to 20 years to reach sexual maturity, and have low reproductive rates during a long period of reproductive potential. The number of eggs that a female desert tortoise can produce in a season is dependent on a variety of factors including environment, habitat, availability of forage and drinking water, and physiological condition. Predation seems to play an important role in clutch failure. Predation and environmental factors also affect the survival of hatchlings. The Service notes in the 5-year review that the combination of the desert tortoise's late breeding age and a low reproductive rate challenges our ability to achieve recovery.

Since the completion of the 5-year review, the Service has issued several biological opinions that effect large areas of desert tortoise habitat because of numerous proposals to develop renewable energy within its range. These biological opinions concluded that proposed solar plants were not likely to jeopardize the continued existence of the desert tortoise primarily because they were located outside of critical habitat and desert wildlife management areas that contain most of the land base required for the recovery of the species. The proposed actions also included numerous measures intended to protect desert tortoise during the construction of the projects, such as translocation of affected individuals. In aggregate, these projects would result in an overall loss of approximately 44,615 acres of habitat of the desert tortoise. We also predicted that the project areas supported up to 3,664 desert tortoises; we concluded that most of these individuals were small desert tortoises, that most large individuals would likely be translocated from project sites, and that most mortalities would be small desert tortoises that were not detected during clearance surveys. To date, 560 desert tortoises have been observed during construction of projects; most of these individuals were translocated from work areas, although some desert tortoises have been killed (see Appendix C). The mitigation required by the BLM and California Energy Commission, the agencies permitting these facilities, resulted in the acquisition of private land and funding for the implementation of various actions that are intended to promote the recovery of the desert tortoise. Although most of these mitigation measures are consistent with recommendations in the recovery plans for the desert tortoise and the Service continues to support their implementation, we cannot assess how desert tortoise populations will respond because of the long generation time of the species.

In addition to the biological opinions issued for solar development within the range of the desert tortoise, the Service (2012a) also issued a biological opinion to the Department of the Army for the use of additional training lands at Fort Irwin. As part of this proposed action, the Department of the Army removed approximately 650 desert tortoises from 18,197 acres of the southern area of Fort Irwin, which had been off-limits to training. The Department of the Army would also use an additional 48,629 acres that lie east of the former boundaries of Fort Irwin; much of this parcel is either too mountainous or too rocky and low in elevation to support numerous desert tortoises.

The Service also issued a biological opinion to the Marine Corps that considered the effects of the expansion of the Marine Corps Air Ground Combat Center at Twentynine Palms (Service 2012b). We concluded that the Marine Corps' proposed action, the use of approximately 167,971 acres for training, was not likely to jeopardize the continued existence of the desert tortoise. Most of the expansion area lies within the Johnson Valley Off-highway Vehicle Management Area.

The incremental effect of the larger actions (i.e., solar development, the expansions of Fort Irwin, and the Marine Corps Air Ground Combat Center) on the desert tortoise is unlikely to be positive, despite the numerous conservation measures that have been (or will be) implemented as part of the actions. The acquisition of private lands as mitigation for most of these actions increases the level of protection afforded these lands; however, these acquisitions do not create new habitat and Federal, State, and privately managed lands remain subject to most of the threats and stresses we discussed previously in this section. Although land managers have been implementing measures to manage these threats, we have been unable, to date, to determine whether the measures have been successful, at least in part because of the low reproductive capacity of the desert tortoise. Therefore, the conversion of habitat into areas that are unsuitable for this species continues the trend of constricting the desert tortoise into a smaller portion of its range.

As the Service notes in the 5-year review (Service 2010), "(t)he threats identified in the original listing rule continue to affect the (desert tortoise) today, with invasive species, wildfire, and renewable energy development coming to the forefront as important factors in habitat loss and conversion. The vast majority of threats to the desert tortoise or its habitat are associated with human land uses." Oftedal's work (2002 in Service 2010) suggests that invasive weeds may adversely affect the physiological health of desert tortoises. Current information indicates that invasive species likely affect a large portion of the desert tortoise's range (Figure 4). Furthermore, high densities of weedy species increase the likelihood of wildfires; wildfires, in turn, destroy native species and further the spread of invasive weeds.

Global climate change is likely to affect the prospects for the long-term conservation of the desert tortoise. For example, predictions for climate change within the range of the desert tortoise suggest more frequent and/or prolonged droughts with an increase of the annual mean temperature by 3.5 to 4.0 degrees Celsius. The greatest increases will likely occur in summer (June-July-August mean increase of as much as 5 degrees Celsius [Christensen et al. 2007 in Service 2010]). Precipitation will likely decrease by 5 to 15 percent annually in the region with winter precipitation decreasing by up to 20 percent and summer precipitation increasing by up to 5 percent. Because germination of the desert tortoise's food plants is highly dependent on cool-season rains, the forage base could be reduced due to increasing temperatures and decreasing precipitation in winter. Although drought occurs routinely in the Mojave Desert, extended periods of drought have the potential to affect desert tortoises and their habitats through physiological effects to individuals (i.e., stress) and limited forage availability. To place the consequences of long-term drought in perspective, Longshore et al. (2003) demonstrated that

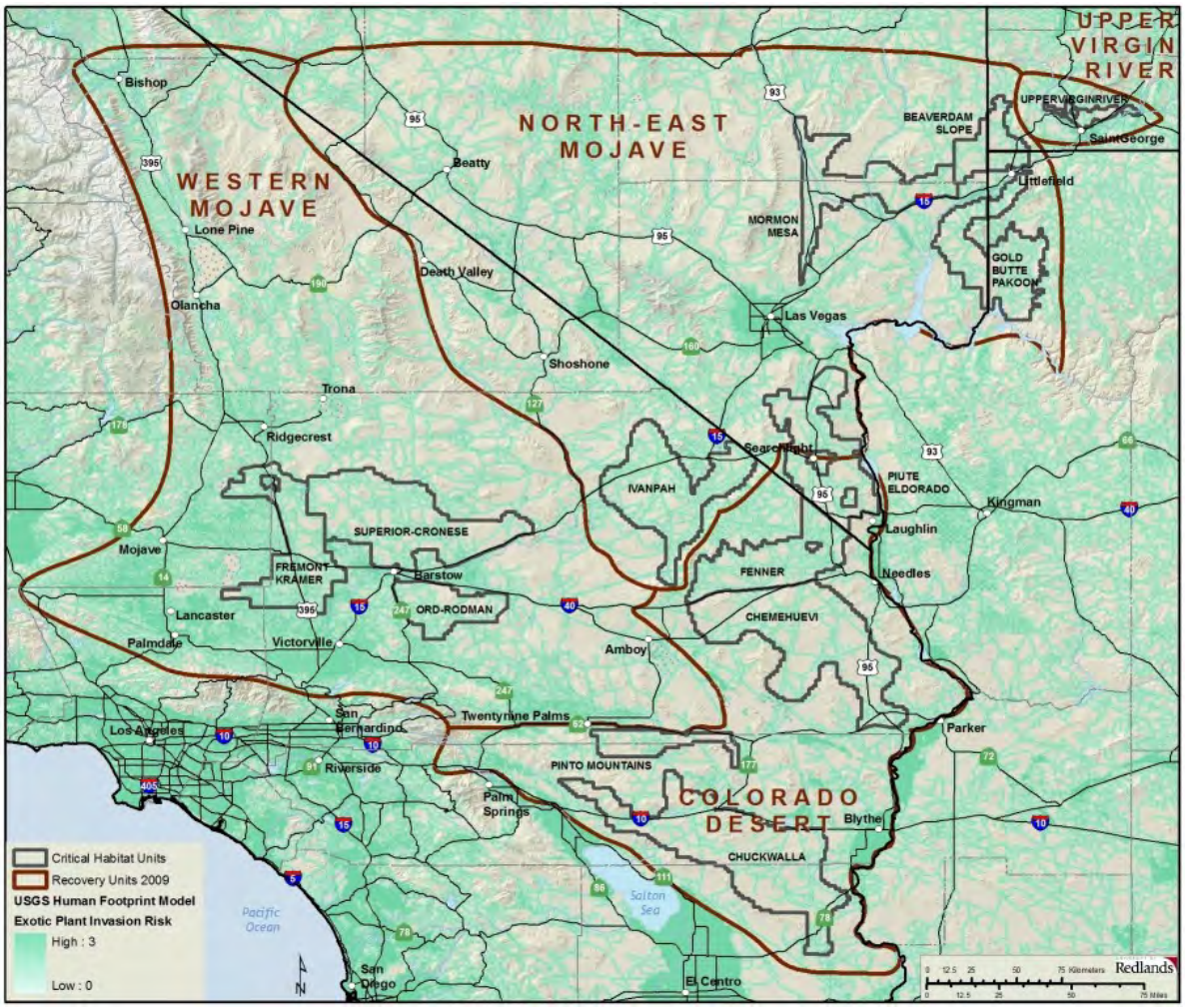

Figure 4: Invasion risk of non-native invasive plant species within the range of the desert tortoise.

even short-term drought could result in elevated levels of mortality of desert tortoises. Therefore, long-term drought is likely to have even greater effects, particularly given that the current fragmented nature of desert tortoise habitat (e.g., urban and agricultural development, highways, freeways, military training areas, etc.) will make recolonization of extirpated areas difficult, if not impossible.

Core Criteria for the Jeopardy Determination

When determining whether a proposed action is likely to jeopardize the continued existence of a species, we are required to consider whether the action would "reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 Code of Federal Regulations 402.02). Although the Service does not explicitly address these metrics in the 5-year review, we have used the information in that document and more recent information to summarize the status of the desert tortoise with respect to its reproduction, numbers, and distribution.

Reproduction

In the 5-year review, the Service notes that desert tortoises increase their reproduction in high rainfall years; more rain provides desert tortoises with more high quality food (i.e., plants that are higher in water and protein), which, in turn, allows them to lay more eggs. Conversely, the physiological stress associated with foraging on food plants with insufficient water and nitrogen may leave desert tortoises vulnerable to disease (Oftedal 2002 in Service 2010), and the reproductive rate of diseased desert tortoises is likely lower than that of healthy animals. Young desert tortoises also rely upon high-quality, low-fiber plants (e.g., native annual plants) with nutrient levels not found in the invasive weeds that have increased in abundance across its range (Oftedal et al. 2002; Tracy et al. 2004). Compromised nutrition of young desert tortoises likely represents an effective reduction in reproduction by reducing the number of animals that reaches adulthood. Consequently, although we do not have quantitative data that show a direct relationship, the abundance of weedy species within the range of the desert tortoise has the potential to affect the reproduction of desert tortoises and recruitment into the adult population in a negative manner.

Various human activities have introduced numerous species of non-native invasive plants into the California desert. Routes that humans use to travel through the desert (paved and unpaved roads, railroads, motorcycle trials, etc.) serve as pathways for new species to enter habitat of the desert tortoise and for species that currently occur there to spread. Other disturbances of the desert substrate also provide invasive species with entry points into the desert. The following map depicts the potential for these species to invade habitat of the desert tortoise. The reproductive capacity of the desert tortoise may be compromised to some degree by the abundance and distribution of invasive weeds across its range; the continued increase in human access across the desert likely continues to facilitate the spread of weeds and further affect the reproductive capacity of the species.

Numbers

In the 5-year review, the Service discusses various means by which researchers have attempted to determine the abundance of desert tortoises and the strengths and weaknesses of those methods. Due to differences in area covered and especially to the non-representative nature of earlier sample sites, data gathered by the Service's current range-wide monitoring program cannot be reliably compared to information gathered through other means at this time.

Data from small-scale study plots (e.g., 1 square mile) established as early as 1976 and surveyed primarily through the mid-1990s indicate that localized population declines occurred at many sites across the desert tortoise's range, especially in the western Mojave Desert; spatial analyses of more widespread surveys also found evidence of relatively high mortality in some parts of the range (Tracy et al. 2004). Although population densities from the local study plots cannot be extrapolated to provide an estimate of the number of desert tortoises on a range wide basis, historical densities in some parts of the desert exceeded 100 adults in a square mile (Tracy et al.

2004). The Service (2010) concluded that "appreciable declines at the local level in many areas, which coupled with other survey results, suggest that declines may have occurred more broadly."

The range-wide monitoring that the Service initiated in 2001 is the first comprehensive attempt to determine the densities of desert tortoises in conservation areas across their range. The Desert Tortoise Recovery Office used annual density estimates obtained from this sampling effort to evaluate range-wide trends in the density of desert tortoises over time. This analysis indicates that densities in the Northeastern Mojave Recovery Unit have increased since 2004, with the increase apparently resulting from increased survival of adults and sub-adults moving into the adult size class. The analysis also indicates that the populations in the other four recovery units are declining; Table 1 depicts the estimated numbers of desert tortoises and the rates of population changes. Densities in the Joshua Tree and Piute Valley conservation areas within the Colorado Desert Recovery Unit seem to be increasing, although densities in the recovery unit as a whole continue to decline.

Table 1. Estimated numbers of desert tortoises and the rates of population changes

Recovery Units	**2004**	**2014**	**Change**	**Percentage of Change**
Western Mojave	35,777	17,644	-18,133	-51
Colorado Desert	67,087	42,770	-24,317	-36
Northeastern Mojave	4,920	18,220	+13,300	+270
Eastern Mojave	16,165	5,292	-10,873	-67
Upper Virgin River	2,397	1,760	-637	-27
Total	126,346	85,686	-40,660	-32

In the previous summary of the results of range-wide sampling (Service 2014a), we extrapolated the densities obtained within conservation areas (e.g., desert wildlife management area, Desert Tortoise Research Natural Area, Joshua Tree National Park) to all modeled habitat of the desert tortoise. This extrapolation exaggerated the number of desert tortoises because we applied the values for areas where we know densities are highest (i.e., the conservation areas) to areas where we know desert tortoises exist in very low densities (e.g., the Antelope Valley).

To further examine the status of the desert tortoise over time with regard to numbers, we compared the density of desert tortoises in the Western Mojave Recovery Unit in 2012 (i.e., the recovery unit with the highest density of desert tortoises in 2012) with historical densities that, in some parts of the desert, exceeded 100 adults in a square mile (Tracy et al. 2004). In 2012, the Western Mojave Recovery Unit supported 3.6 adult desert tortoises per square kilometer. We then converted this value to the density per square mile to allow for a direct comparison with historical densities. (1 square mile = ~2.6 square kilometers; 3.6/square kilometer = x/2.6 square kilometers; x = 2.6 x 3.6; x = 9.36.) Therefore, the density of desert tortoises has declined to approximately 9.4 adults per square mile within conservation areas in the Western Mojave Recovery Unit as compared with historical densities in some parts of the desert of more than 100 per square mile. We are unaware of any areas where the density of large desert tortoises is close to 100 per square mile at this time.

In the Western Mojave and Colorado Desert recovery units, the relative number of juveniles to adults indicates that juvenile numbers are declining faster than adults. In the Eastern Mojave, the number of juvenile desert tortoises is also declining, but not as rapidly as the number of adults. In the Upper Virgin River Recovery Unit, trends in juvenile numbers are similar to those of adults; in the Northeastern Mojave Recovery Unit, the number of juveniles is increasing, but not as rapidly as are adult numbers in that recovery unit. Juvenile numbers, like adult densities, are responding in a directional way, with increasing, stable, or decreasing trends, depending on the recovery unit where they are found.

In this context, we consider "juvenile" desert tortoises to be animals smaller than 180 millimeters in length. The Service does not include juveniles detected during range-wide sampling in density estimations because they are more difficult to detect and surveyors frequently do not observe them during sampling. However, this systematic range-wide sampling provides us with an opportunity to compare the proportion of juveniles to adults observed between years.

Distribution

Prior to 1994, desert tortoises were extirpated from large areas within their distributional limits by urban and agricultural development (e.g., the cities of Barstow and Lancaster, California; Las Vegas, Nevada; and St. George, Utah; etc.; agricultural areas south of Edwards Air Force Base and east of Barstow), military training (e.g., Fort Irwin, Leach Lake Gunnery Range), and off-road vehicle use (e.g., portions of off-road management areas managed by the BLM and unauthorized use in areas such as east of California City, California).

Since 1994, urban development around Las Vegas has likely been the largest contributor to habitat loss throughout the range. Desert tortoises have been essentially removed from the 18,197-acre southern expansion area at Fort Irwin (Service 2012a). The development of large solar facilities has also reduced the amount of habitat available to desert tortoises. No solar facilities have been developed within desert tortoise conservation areas, such as desert wildlife management areas, although such projects have occurred in areas that the Service considers important linkages between conservation areas (e.g., Silver State South Project in Nevada).

Table 2 depicts acreages of habitat (as modeled by Nussear et al. 2009, using only areas with a probability of occupancy by desert tortoises greater than 0.5 as potential habitat) within the recovery units of the desert tortoise and of impervious surfaces as of 2006 (Fry et al. 2011); calculations are by Darst (2014). Impervious surfaces include paved and developed areas and other disturbed areas that have zero probability of supporting desert tortoises. All units are in acres.

Table 2. Acreages of habitat and of impervious surfaces within the range of the desert tortoise as of 2006.

Recovery Units	Modeled Habitat	Impervious Surfaces (percentage)	Remaining Modeled Habitat
Western Mojave	7,585,312	1,989,843 (26)	5,595,469
Colorado Desert	4,950,225	510,862 (10)	4,439,363
Northeastern Mojave	3,012,293	386,182 (13)	2,626,111
Eastern Mojave	4,763,123	825,274 (17)	3,937,849
Upper Virgin River	231,460	84,404 (36)	147,056
Total	20,542,413	3,796,565 (18)	16,745,848

The Service (2010) concluded, in its 5-year review, that the distribution of the desert tortoise has not changed substantially since the publication of the original recovery plan in 1994 in terms of the overall extent of its range. Since 2010, we again conclude that the species' distribution has not changed substantially in terms of the overall extent of its range, although desert tortoises have been removed from several thousand acres because of solar development and military activities.

ENVIRONMENTAL BASELINE CONDITION OF THE ACTION AREA

Definition of the Action Area

The *action area* is defined, as all areas to be affected directly or indirectly by the Federal action including interrelated and interdependent actions, and not merely the immediate area involved in the action (50 CFR § 402.02). The action area only includes affected areas potentially occupied by threatened, endangered, or proposed species or their proposed or designated critical habitat, or that provide biotic or abiotic resources for such species or habitats. Subsequent analyses of the environmental baseline, effects of the action, cumulative effects, and levels of incidental take are based upon the action area as determined by the Service.

The action area for this Biological Opinion includes the solar facility, gen-tie route, access roads, water pipeline alignment, water intake site, and other ancillary facilities including private land as described in the BA.

Status of the Desert Tortoise in the Action Area

Desert tortoise surveys were completed in May and October 2014 (NewFields 2015) covering 1,085 acres using Service-approved protocols (Service 2010). Four live tortoises, 53 tortoise burrows, 9 carcasses, and 4 scat were observed within the survey area. The estimated number of live adult desert tortoise based on the formula provided in Service (2010) calculated to be 8 with a 95 percent confidence interval of 2.85 to 26.27; the point estimate is 8.6 adult tortoises. The

actual number of desert tortoises on the site may increase or decrease if one or more tortoises more onto or out of the site. Approximately 9 adult tortoises were found within 500 meters of the southeastern solar field boundary which may enter the site. No desert tortoises were found on the BLM portion of the project.

The dominant vegetation community in the action area is Mojave creosote bush scrub. This community typically is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with other associated species. Sahara mustard (*Brassica tournefortii*), a plant species designated by the Nevada Department of Agriculture as an invasive weed species, is likely found within the area or nearby.

Existing disturbances in the action area include off-highway vehicle recreation, flooding, power lines, and residential development.

Factors Affecting the Desert Tortoise in the Action Area

The Muddy River and Meadow Valley Wash surround the action area west, south, and east of the action area which form natural barriers to genetic connectivity. In addition to natural barriers, an there is an existing railroad alignment east of the action area with steeply sloped sides and only occasional culvert underpasses providing some degree of permeability. SR 168 divides the project into two areas. Average annual daily traffic on SR 168 from 2007 through 2014 ranged from 190 to 250 cars (Nevada Department of Transportation 2015) compared to 17,850 cars per day on Interstate 15 near Moapa. SR 168 forms the boundary between the northern and southern project areas. Reservation Road and Lyttle Road occur in the southern project area and provide the main access to the Reservation from SR 168. The unpaved Curocee Road is parallel to SR 168 and crosses through the northern section of the project. Additional unpaved roads occur in both the northern and southern project areas.

The project site is located within the modeled least cost corridor for the desert tortoise (Service 2012). Least-cost path models identify potential linkages within which an animal would have the best chance of survival according to a specified "cost surface" (Noss and Daly 2006) such as high-quality habitat. This type of evaluation provides an estimation of relative potential for animal passage across the entire landscape, including the identification of potential barriers to movement. It is likely that the desert tortoise population within the action area is genetically connected to the populations within the Mormon Mesa Critical Habitat Unit (CHU) to the north due to the short, relatively unencumbered distance between the two. The northern project boundary is about 7.5 miles south of the Mormon Mesa CHU southern boundary. The home ranges of the tortoises found within the corridor likely overlap with the ranges of tortoises within the Mormon Mesa CHU allowing for a genetic link between the tortoise populations in the action area with the populations found within the CHU.

Demographic connectivity describes the degree to which population growth and vital rates are affected by dispersal. This concept differs from genetic connectivity as it refers to a more geographic concept of how habitat, vegetation, and dispersal (immigration and emigration) affect

survival of a species through birth and growth rates. Demographic connectivity would assume a greater geographic connectedness of habitat and vegetation than genetic connectivity. Within the action area, demographic connectivity has been partially restricted by barriers previously described. However, large tracts of undeveloped land occur north of the area, allowing for the maintenance of demographic connectivity. Furthermore, connectivity still exists though limited, to the east, south, and west, as some of the human developments contain culverts or similar features designed to make these anthropogenic structures permeable to wildlife population movement.

Tribal Conservation Plan

On April 2, 2014, the Tribe approved the *Desert Tortoise Management and Conservation Plan for the Moapa River Indian Reservation*. The purpose of the plan is to provide guidance for management and protection of desert tortoises and their habitat on the Reservation which includes most of the action area. The goal of the Plan is to allow economic development for the Tribe while living in harmony with the environment and, in particular, the desert tortoise. Annual work plans will be prepared by the Tribe and Service to accomplish the goals of the plan. Funds collected under section 7 consultations will be used to fund recovery and conservation actions.

The first work plan was developed by the Tribe and approved by the Service on November 4, 2015 (Appendix A). Actions in the work plan span 5 years (2015-2019) and include: installing signs to protect conserved tortoise habitat, assess status of the tortoise and its habitat across the Reservation, create educational brochures, install tortoise fencing along roads, grow plants for restoration projects, and restore disturbances.

Previously Issued Biological Opinions with Major Effects to Desert Tortoise in the Action Area

BLM Programmatic Biological Opinions for Projects in the Action Area. Several programmatic biological opinions (PBOs) have been issued to the BLM that include land in the action area for the projects. The first one was issued on November 25, 1997 (Service 1997) for implementation of various land management programs within the Las Vegas District planning area excluding desert tortoise critical habitat and areas of critical environmental concern (ACECs), and outside the Las Vegas Valley. Activities proposed that may affect the desert tortoise in the action area include issuance of a ROW, Recreation and Public Purposes Act leases, mineral material sales and leases, and mining plans of operation. The programmatic consultation is limited to activities which may affect up to 240 acres per project, and a cumulative total of 10,000 acres excluding land exchanges and sales. Only land disposals by sale or exchange in Clark County but outside the Las Vegas Valley are covered under the consultation up to a cumulative total of 14,637 acres. Thus, a maximum total of 24,637 acres of desert tortoise habitat may be affected by the proposed programmatic activities.

On June 18, 1998, the Service issued a PBO (Service 1998) to BLM for implementation of various land management programs within desert tortoise habitat and the Las Vegas planning

area, including desert tortoise critical habitat and ACECs. Activities that were proposed that may affect the desert tortoise in the action area include recreation; designation of utility corridors and mineral material extraction areas; and designation of the desert tortoise ACECs.

On June 17, 2010, the BLM submitted a programmatic biological assessment to the Service to request consultation for program-level and project level actions that may affect, and are likely to adversely affect 19 threatened and endangered species, including the desert tortoise and of which 13 have designated critical habitat within the action area for the consultation. On January 2, 2013, the Service issued a non-jeopardy PBO to the BLM based on review of these activities (Service 2013). While the BLM's 1998 resource management plan remains in effect, the 2013 PBO replaces the Service's 1998 document, which covered a 10-year period, and is expected to be in place through 2016.

Tribal Travel Plaza Water Pipeline. On August 6, 2007, the Service issued a biological opinion (Service 2007; File No. 1-5-05-FW-536, Tier 3) to the U.S. Department of Housing and Urban Development for their proposed funding to construct a water pipeline from an existing well to the existing Tribal Travel Plaza approximately 3 miles away. Construction of the water pipeline resulted in 17.57 acres of desert tortoise habitat disturbance. No desert tortoises were reported taken as a result of the project.

K Road Moapa Solar Energy Project. In 2012, the Service issued a biological opinion (Service 2012d; File No. 84320-2011-F-0430) to the BIA for the K Road Moapa solar energy project under the intra-Service PBO for the Proposed Muddy River MOA (File No. 1-5-05-FW-536, Tier 5). The project involved the Tribe leasing land to a private applicant for the construction of a PV solar generating station 30 miles northeast of Las Vegas in Clark County. The BIA approvals included the lease of Tribal land and grant of easement for ROW for the access road, 12-kV transmission line, and water pipeline. The BLM issued ROW grants for an up to 500-kV transmission line and improvement of an existing access road. The BLM ROW occurs within an existing utility corridor, of which 5.0 miles is located on the Reservation and 0.5 mile on BLM land just south of the Reservation boundary. The project area is located on approximately 2,241 acres of land within the Reservation and 12 acres on BLM land within the utility corridor (total of2,153 acres). All components, with the exception of power transmission lines, access roads, firebreak, and water pipeline, will be developed within the fenced 2,000-ac solar facility. Power and water transmission lines include an approximate 5.5-mile electric transmission line corridor (200 feet wide), an approximate 1-mile water pipeline corridor (25 feet wide), and an approximate 3-mile 12-kV transmission line (25 feet wide) to the Moapa Travel Plaza. The project also includes a 6,000-ac site to receive displaced tortoises and two additional evaluation areas for short-term use (i.e., 5 years or less) associated with translocation of the tortoises. The Tribe will conserve the established home ranges of most translocated tortoises, up to 6,000 acres, at least until the lease on the 2,000-ac solar site ends, and the Service determines that the site is available and suitable for habitation.

Desert tortoise pre-project surveys estimated that 25 to 103 adult and sub-adult desert and 20 to 83 hatchling and juvenile tortoises would occur in the 2,000-acre K Road solar facility boundary;

thus, the biological opinion identified a threshold of l 03 adult and sub-adult and 83 hatchling and juvenile desert tortoises could be taken by capture within this area of the project. On April 13, 2013, the BIA reinitiated consultation for the project because 98 of the 103 sub-adult and adult desert tortoises had been captured in the solar facility boundary, and the final capture number was anticipated to exceed the identified 103 threshold. Based on the information in the reinitiation request, the Service revised the incidental take threshold and identified that no more than 120 adult and sub-adult tortoises would be captured and translocated from the solar facility boundary (File No. 84320-2011-F-0430.R001).

Final clearance surveys of the solar facility area resulted in the capture of 108 adults and sub-adults and 49 hatchlings and juveniles (BIA 2011). Biologists translocated these tortoises according to the translocation plan for the project in the spring of 2013. The biologists also monitored 18 large desert tortoises as controls or residents. Extremely high temperatures during the summer may have killed two or more large translocated desert tortoises. Predators likely killed eight small translocated desert tortoises. No resident or control desert tortoises died during monitoring (Burroughs 2013).

RES Americas Moapa Solar Energy Center. In 2014, the Service issued a biological opinion (Service 2014b; File Nos. 2013-F-0301 & 1-5-05-FW-536) to the BIA and BLM for the Res America Moapa Solar Energy Center under the intra-Service PBO for the Proposed Muddy River MOA (File No. 1-5-05-FW-536, Tier 5). The project involved construction and operation a solar generation facility, water pipeline, and parts of the other linear facilities on the Moapa River Indian Reservation and two transmission lines (230 kV and 500 kV) and an access road on lands managed by the BLM. The project area is located on approximately 885 acres of land within the Reservation and 66 acres of BLM land. Based on pre-project survey results, the project was expected to capture and relocate 2-10 adult and sub-adult (>160 mm MCL) tortoises and 0 to 56 juvenile and hatchling (<160 mm MCL) tortoises. Based on the number of tortoises estimated to occur within the solar facility project area and draft Service guidance (Service 2012), development of a desert tortoise translocation plan was not required. The biological opinion authorizes the capture of 19 adult and sub-adult tortoises during construction and 10 tortoises (no more than two per year) during operations

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of the proposed action on the species or critical habitat that would be added to the environmental baseline, along with the effects of other activities that are interrelated or interdependent with that action. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification.

Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur. Indirect effects can be both spatial and temporal in nature. In contrast to direct effects, indirect effects can often be more subtle, and may affect species and habitat quality over an extended period, long after project activities have been

completed. Indirect effects are of particular concern for long-lived species such as the desert tortoise, because project-related effects may not become evident in individuals or populations until years later.

Direct Effects

Construction and O&M Effects on Desert Tortoises

Death and injury of desert tortoises could result from excavation activities such as clearing and grubbing of vegetation; trenching activities and entrapment in open trenches and pipes; and collisions with or crushing by vehicles or heavy equipment, including individuals that take shelter under parked vehicles and are killed or injured when vehicles are moved. Desert tortoises that enter or attempt to cross project access roads may be struck resulting in death or injury. Mortality mechanisms also include individual desert tortoises or their eggs being crushed or buried in burrows during construction and O&M-related activities. Because of increased human presence in the area, desert tortoises may be killed or injured due to collection or vandalism associated with increased encounters with workers, visitors, and unauthorized pets. Desert tortoises also may be attracted to the construction area by application of water to control dust, placing them at higher risk of death or injury. Desert tortoises also may be directly or indirectly affected by construction noise (including blasting), ground vibrations, artificial lighting, application of herbicides, and proliferation of nonnative species.

We estimate that all life stages of desert tortoise that occur on the solar site and in harm's way on other project activity areas described above may be adversely affected by the proposed action. We acknowledge, however, that not all individuals killed or injured during construction, operations, and maintenance activities will be detected by biological monitors or project staff and subsequently reported to us. The inability to detect all tortoises is largely due to the cryptic nature of desert tortoises, fossorial habits, and limited abundance; and in the case of juveniles and eggs, their small size and location underground reduce detection probabilities of these life stages. Another confounding factor is that scavengers may locate, consume, or remove carcasses before monitors can locate them.

Overall, we expect death and injury of most subadult and adult tortoises to be avoided during construction and O&M activities through implementation and compliance of proposed protective measures including multiple 100-percent coverage surveys and relocation of tortoise from harm's way.

Project Access Effects

Project access will include two primary access roads approximately 200 feet long - one that would connect the southern portion of the solar site to SR 168 and one connecting the northern portion of the solar site to SR 168. In addition, two 200-foot-long secondary access roads will be constructed primarily for emergency access. One secondary access road would connect SR 168

to the northern project site, similar to the primary access road for this area, but the emergency entrance would be located further west along Highway 168. The secondary access road for the array south of SR 168 would be located along the easternmost boundary of the southern array with its entrance located along SR 168.

The primary effect of project access on desert tortoises is the risk of vehicle strikes. We believe the proposed measures to require all workers to participate in the Worker Environmental Awareness Training, implement speed limits, perform clearance surveys, use authorized desert tortoise biologists and monitors during construction of the access roads, and tortoise fencing, workers may be less likely to strike desert tortoises than a casual user.

Effects of Loss of Habitat

Because recovery of vegetation in the desert can take decades or longer, we consider all ground-disturbing impacts associated with the proposed project to be long-term. Vasek et al. (1975) found that in the Mojave Desert transmission line construction and O&M activities resulted in a unvegetated maintenance road, enhanced vegetation along the road edge and between tower sites (often dominated by nonnative species), and reduced vegetation cover under the towers, which recovered significantly but not completely in about 33 years. Webb (2002) determined that absent active restoration following extensive disturbance and compaction in the Mojave Desert, soils in this environment could take between 92 and 124 years to recover. Other studies have shown that recovery of plant cover and biomass in the Mojave Desert could require 50 to 300 years in the absence of restoration efforts (Lovich and Bainbridge 1999). Based on a quantitative review of studies evaluating post-disturbance plant recovery and success in the Mojave and Sonoran deserts, Abella (2010) found that reestablishment of perennial shrub cover (to amounts found on undisturbed areas) generally occurs within 100 years but no fewer than 40 years in some situations. He also found that a number of variables likely affect vegetation recovery times, including but not limited to climate (e.g., precipitation and temperatures), invasion by nonnative plant species, and the magnitude and extent of ongoing disturbance.

The proposed project will result in the disturbance of approximately 672 acres of low quality habitat (Table 3). The project will directly impact approximately 0.026 percent of the total 2.63 million acres available within the Northeastern Mojave Recovery Unit (Service 2010).

As part of the project decommissioning, the Applicant would implement restoration activities following such as decompacting soils, seeding, and nonnative species control in accordance with the approved Restoration and Revegetation Plan included as an appendix to the final environmental impact statement for the project.

Table 3. Summary of long-term and temporary disturbance for the Aiya Solar Project (BIA 2015)

Project Component	**Total Disturbance-construction (acres)**	**Project Lifespan Disturbance (acres)**
Solar Field and Ancillary Facilities	625	575
Access Roads	2	1
230 kV Gen-Tie Line	40	15
Water Intake and Pipeline (max)	5	0
Total	672	591

Tortoise Effects as a Result of Capture/Failure to Locate, Handling, Relocation

In addition to construction and O&M-related activities, the primary effects of the proposed action on desert tortoises will result from capture and translocation of individuals prior to any ground disturbance associated with the project. Capture and translocation of desert tortoises may result in accidental death and injury from stress or disease transmission associated with handling tortoises; stress associated with moving individuals outside of their established home range; stress associated with artificially increasing the density of tortoises in an area and thereby increasing competition for resources; and disease transmission between and among translocated and resident desert tortoises. Capture and handling of translocated and resident desert tortoises for the purposes of conducting health assessments, which include visual inspection relative to body condition, clinical signs of disease, and collection of biological samples for disease screening (i.e., blood samples to test for antibodies to pathogens), could result in accidental death or injury.

Capturing, handling, and moving tortoises for the purposes of translocating them out of the project areas or out of harm's way may result in accidental death or injury if these methods are performed improperly, such as during extreme temperatures, or if individuals void their bladders and are not rehydrated. Averill-Murray (2002) determined desert tortoises that voided their bladders during handling had lower overall survival rates (0.81 to 0.88) than those that did not void (0.96). If multiple desert tortoises are handled by biologists without the use of appropriate protective measures and procedures, such as reused latex gloves, pathogens may be spread among individuals.

We anticipate that the Applicant will capture and translocate all subadult and adult desert tortoises from the fenced project areas and any portion of the action area where individuals may be in harm's way of project activities. Because of the difficulty in locating juvenile desert tortoises and eggs, some but not all are likely to be translocated from the project areas. If desert tortoise are not detected, captured and moved, they are at high risk to death or injury during construction. Desert tortoises on the proposed solar facility site may be moved more than 500 meters which may be outside of their existing home ranges to the approved recipient areas.

Tortoise moved will be monitored for 1 year following their release. Desert tortoises that are found on the BLM corridor, in harm's way on access roads, or other situations where they may be moved less than 500 meters will not be translocated in accordance with the translocation plan, these tortoises will be moved the minimal distance from harm's way to secure habitat.

Turner et al. (1987) developed a life table for female desert tortoises based on studies conducted at Goffs, California, in 1983. They estimated that 13.2 percent of the desert tortoises in that population were larger than 180 millimeters in length. Because the project site assessments and population estimates were based on the delineation of adult tortoises at 160 millimeters (6.3 inches), a correction to the size classes was necessary. Turner et al. (1987) determined that 4.5 percent of the tortoise population at Goffs was 140 to 179 millimeters (5.5 to 7.0 inches); therefore, we assume that approximately half those tortoises are 140 to 159 millimeters, or 2.2 percent and the portion of the population 160 millimeters and greater is 15.4 percent. To estimate the number of all desert tortoises within the solar facility, we used the methodology and calculations provided below.

Table 4: Number of desert tortoises estimated to occur on the Aiya Solar Project

Estimated number of tortoises within the project footprint (point estimate) of desert tortoises larger than 180 millimeters (95% confidence interval)	9 (2.85-26.27)
Estimated number of desert tortoise near the project boundary that may enter the site and require relocation including the BLM ROW	3
Percentage of desert tortoises in size classes larger than 180 millimeters (from Turner et al. 1987, table 32)	13.2
The total number of desert tortoises (X), calculated by (9+3)/X = 13.2/100, X =	91
The number of juvenile desert tortoises can be calculated by 91 – 12 =	79

Two caveats apply to this estimate. The table in Turner et al. (1987) is based only on females and we assumed that the size classes also applied to males. The demography of the population at the solar facility may be different than that at Goffs at the time of the work conducted by Turner et al.; we do not have complete information on the demography of the population at the solar facility. Although the estimate of the number of desert tortoises on the project site is based on the best available information, the overall number of animals may be different. Considering no tortoises less than 180 millimeters were detected during the surveys of the project site suggests the actual number of juvenile tortoises is within the lower end of the estimate range. The actual number of adult tortoises on the site may be greater than the point estimate of 9 because home ranges of one or more tortoises likely overlap the proposed solar field site and therefore, may occur onsite when the fence is constructed. We estimate an additional 3 adult tortoises (12 total) may be captured and moved as a result of the proposed action.

Effects to juvenile desert tortoises and eggs that are undetected on the project sites are discussed later in this section. Translocation has the potential to increase the prevalence of diseases, such as Upper Respiratory Tract Disease, in translocated and resident desert tortoises. Physiological stresses associated with handling and movement or from density-dependent effects could

exacerbate this risk if translocated individuals with subclinical diseases that present symptoms subsequent to translocation. This potential conversion of translocated desert tortoises from a non-contagious to contagious state may increase the potential for infection in the resident population above pre-translocation levels. To minimize this risk, health assessments would be conducted on all desert tortoises to be translocated prior to being released in accordance with the most recent Service guidance (Service 2013a).

In conclusion, we do not anticipate that moving desert tortoises out of harm's way would result in death or injury because these individuals would remain near or within their existing home range, which is not likely to result in significant social or competitive impacts to resident desert tortoises in the area.

Monitoring Displaced Tortoises

Most tortoises greater than 100 mm will have transmitters attached and be monitored and handled periodically for visual health assessments during ground-disturbing and/or off-road operation and maintenance activities outside of the fenced solar facility (Minimization Measure 18). Some potential exists that handling of desert tortoises may cause elevated levels of stress that may render these animals more susceptible to disease or dehydration from loss of fluids. However, because the Applicant will employ experienced biologists approved by the Service, we do not expect handling and monitoring activities to result in death or injury of any individuals.

Indirect Effects

Indirect effects of the proposed project also result in death or injury to desert tortoises. Some of these effects include increased predation by common ravens, reduced area within habitat linkages important to maintaining population and genetic connectivity, degradation of habitat and the diet of desert tortoises from the spread of nonnative plant species, noise, and lighting from project construction and operations.

Predator Subsidies

Common ravens and coyotes are attracted to human activities in the desert because food and water subsidies, and roosting and nesting substrates that would otherwise be unavailable. Human activities also facilitate expansion of raven and coyote populations into areas where they were previously absent or in low abundance. Ravens likely will frequent the project areas because of the potential availability of such subsidies. Aside from the Tribal community, no other human communities occur in the action area. Road-kill of wildlife along SR 168 provides additional attractants and subsidies for opportunistic predators and scavengers; road-kill is not likely to increase appreciably as a result of the project.

Facility infrastructure, such as power poles, fences, buildings, and other structures on the project site, may provide perching, roosting, and nesting opportunities for ravens and other avian

predators. Natural predation rates may be altered or increased when natural habitats are disturbed or modified. Common raven populations in some areas of the Mojave Desert have increased 1,500 percent from 1968 to 1988 in response to expanding human use of the desert (Boarman 2002). Since ravens were scarce in the Mojave Desert prior to 1940, the existing level of raven predation on juvenile desert tortoises is considered an unnatural occurrence (BLM 1990). In addition to ravens, feral dogs have emerged as significant predators of desert tortoises adjacent to residential areas.

To avoid and minimize the availability of project sources for predators, subsidies will be minimized by monitoring for the presence of ravens and other predators. The BLM (2014) Raven Management Plan will be implemented as well as specific minimization actions such as onsite trash management, elimination of available water sources, designing structures to discourage potential nest sites, use of hazing to discourage raven presence, and active monitoring of the site for presence of ravens.

Nonnative Plant Species

Another indirect effect from development of the proposed project is the potential introduction and spread of nonnative, potentially invasive plant species into habitats adjacent to the project sites. Construction and O&M activities of the proposed project components may increase distribution and abundance of nonnative species within the action area due to ground-disturbing activities that favor these species. Project equipment may transport nonnative propagules into the project area where they may become established and proliferate. In addition, the introduction of nonnative plant species may lead to increased wildfire risk, which ultimately may result in future habitat losses (Brooks 2003) and changes in forage opportunities for desert tortoises.

The Applicant proposed conservation measures as part of the proposed action to address the potential effects from nonnative plant species. Conservation Measure 7 commits the Applicant to implement a Weed Management Plan includes or should include: worker awareness training; limiting ground disturbance to designated areas only; maintenance of vehicle wash and inspection stations and close monitoring of materials brought onto the site to minimize the potential for weed introduction; reestablishment of native vegetation in disturbed areas to prevent weeds from colonizing newly disturbed areas; and, regularly scheduled monitoring to quickly detect new infestations of weeds, coupled with rapid implementation of control measures to prevent further infiltration.

While we cannot reasonably predict the increase in nonnative species abundance that this project may cause within the action area, the degradation of habitat due to spread of nonnative plants would be minimized through the measures outlined above and in the Weed Management Plan.

Edge Effects

Increased noise levels and the presence of full-time facility lighting may affect desert tortoise behavior during construction and operations of the facility over a 30-year period. While limited

data exist on the effect of noise on desert tortoises, Bowles et al. (1999) demonstrated that the species has relatively sensitive hearing (i.e., mean = 34 dB SPL), but few physiological effects were observed with short-term exposures to jet aircraft noise and sonic booms. These results cannot be extrapolated to chronic exposures over the lifetime of an individual or a population. We also do not have sufficient data documenting the effects of artificial lighting on desert tortoise behavior and therefore cannot reasonably predict the magnitude of effect either noise or light will have on adjacent desert tortoise populations. Based on the ability of other species to adapt to noise disturbance, noise attenuation as distance from the project increases, and the fact that desert tortoises do not rely on auditory cues for their survival, we do not expect any desert tortoises to be injured or killed as a result of project-related noise impacts.

Because few data exist relative to edge effects from noise, light, vibration, and increased dust from construction and O&M activities, we cannot determine how these potential impacts may affect desert tortoise populations adjacent to the development sites. The lack of information is especially relevant when evaluating effects to individuals within the habitat linkage that would be impacted by the proposed project. Thus, the magnitude and extent of these edge effects cannot be articulated at this time, but conceivably could disturb individual desert tortoises to the extent that they abandon all or a portion of their established home ranges and move elsewhere.

Effects on Population Connectivity

Landscape genetic analysis performed by Latch et al. (2011) identified both natural (slope) and anthropogenic (roads) landscape variables that significantly influenced desert tortoise gene flow of a local population. Although they found a higher correlation of genetic distance with slope compared to roads, desert tortoise pairs from the same side of a road exhibited significantly less genetic differentiation than tortoise pairs from opposite sides of a road. Project access roads are not anticipated to decrease population connectivity substantially beyond the existing conditions.

As discussed in the revised recovery plan (Service 2011) and elsewhere, habitat linkages are essential to maintaining rangewide genetic variation (Edwards et al. 2004, Segelbacher et al. 2010) and the ability to shift distribution in response to environmental stochasticity, such as climate change (Ricketts 2000, Fischer and Lindenmayer 2007, EPA 2009). Natural and anthropomorphic constrictions (e.g., I-15) can limit gene flow and the ability of desert tortoises to move between larger blocks of suitable habitat and populations. In the action area, existing anthropomorphic constrictions compound effects of natural barriers on desert tortoise population connectivity.

The proposed solar facility would be constructed in an area with very limited connectivity across the Muddy River to the south and Meadow Valley Wash and railroad to the east, near the northern limits of the linkage. Habitat north of the project is contiguous and generally well-connected with habitat to the north including Mormon Mesa (critical habitat).

In consideration of the environmental setting described above, we anticipate that opportunities for desert tortoise connectivity would not be significantly modified if the proposed project were constructed.

Effects on Desert Tortoise Reproduction

Disturbance associated with solar facility construction would not have a measurable long-term effect on reproduction of individual desert tortoises that live adjacent to the solar facility because intense construction activity would occur over a relatively brief period of time (e.g., 18 months) relative to the reproductive life of female desert tortoises. Furthermore, desert tortoises are well adapted to highly variable and harsh environments and their longevity helps compensate for their variable annual reproductive success (Service 1994).

Because the desert tortoises will be moved from the site prior to construction and all the adult individuals will be found, we expect that few, if any, adult animals will die as a result of construction. Displaced tortoises are expected to remain in their home ranges and existing social structure of the area. Juvenile desert tortoises may be killed because they are more difficult to find; however, the reproductive ecology of the desert tortoise is such that reproductive individuals (i.e., adult animals) play a more important role in maintaining populations than those that are not able to reproduce (i.e., juvenile animals), in large part because of the higher mortality rates of eggs and juvenile desert tortoises. Consequently, the loss of juvenile animals and eggs would not have a measurable effect on the reproductive capacity of desert tortoises in the area.

For these reasons and also because few adult desert tortoises would be affected by the proposed action, we expect that the proposed solar facility is not likely to affect reproduction of the desert tortoise in the action area. Because the effect on reproduction in the action area would not be measurable, the proposed action would not affect reproduction in the remainder of the recovery unit and throughout the range of the listed taxon.

Numbers of Desert Tortoises Affected by Proposed Action

We expect that the construction of the proposed solar facility is likely to injure or kill few adult desert tortoises. The proposed protective measures, including the installation of exclusion fencing around the perimeter of the project and surveys by qualified biologists will detect and remove tortoise from areas within the perimeter fence. The perimeter fence will reduce the likelihood of injury or mortality to tortoises that may enter project areas from adjacent habitat. With the exception of vehicular travel on access roads, project activities would be conducted inside the exclusion fence. We expect that the greatest risk to adult desert tortoises would occur during construction when numerous workers and heavy equipment will be present. Few, if any, desert tortoises are likely to be killed or injured during operations and maintenance.

The Service (2014) estimates that 40,838 adult desert tortoises (i.e., those greater than 180 millimeters in length) occupy modeled habitat within the Northeastern Mojave Recovery Unit. The overall number of desert tortoises would increase if we included individuals smaller than

180 millimeters. Consequently, even the loss of all 9 adult desert tortoises estimated occur on projects areas would comprise a very small portion (approximately 0.02 percent) of the overall population within the Northeastern Mojave Recovery Unit. We expect that many of the juvenile desert tortoises and eggs within the boundaries of the solar facilities are likely to be killed or injured during construction because of their small size and cryptic nature. We also expect that the Applicant would likely find some juvenile animals and translocate or move them out of harm's way. Few desert tortoises are likely to die during operations and maintenance because they are unlikely to be able to enter the facility.

Although we are not comparing the overall estimate of the numbers of juvenile desert tortoises likely to be killed or injured to the overall numbers within the recovery unit, we can reasonably conclude that the number of juvenile desert tortoises affected by the proposed projects is a small percentage of the population in the Northeastern Mojave Recovery Unit.

Effects on Distribution

The long-term loss of 672 acres of desert tortoise habitat that would result from construction of the solar energy project would not appreciably reduce the distribution of the desert tortoise. Based on the Nussear et al. (2009) model and our calculations (Darst 2014), 2,626,111 acres of desert tortoise habitat remain in the Northeastern Mojave Recovery Unit. Consequently, the proposed action would result in the loss of approximately 0.035 percent of the total amount of desert tortoise habitat in the Northeastern Mojave Recovery Unit.

Effects on Species Recovery

The BIA's approval of the lease to construct, operate, maintain, and decommission the proposed Aiya Solar Project and BLM's issuance of a ROWs for gen-tie lines is unlikely to negatively affect the ability of the desert tortoise to reach stable or increasing population trends in the future. The project site does not contain high-quality desert tortoise habitat and will not sever important habitat linkages.

Effects Associated with Climate Change

Increases in atmospheric carbon are responsible for changes in climate. As we discussed in the Range-wide Status of the Desert Tortoise section of this Biological Opinion, climate change is likely to cause frequent and/or prolonged droughts with an increase of the annual mean temperature in the range of the desert tortoise. Increased temperatures would likely adversely affect desert tortoises by limiting their ability to be aboveground. A decrease in rainfall would likely result in fewer annual plants which are important for the nutritional well-being of desert tortoises.

Plant communities in arid lands sequester carbon by incorporating it into their tissues. Plants also respire carbon into the substrate, where it combines with calcium to form calcium carbonate; calcium carbonate also sequesters carbon (Allen and McHughen 2011). The removal of plant

life from approximately 672 acres is likely to reduce the amount of carbon that natural processes can sequester in this localized area. If at least a portion of the project would be mowed and regrowth of shrubs occurs, this effect may be reduced to some degree though we do not have the ability to quantify the difference the mowing would cause.

The proposed action is unlikely to affect desert tortoises in a measureable manner with regard to carbon sequestration. The amount of carbon sequestration that would be lost would be minor because the proposed action would affect a small portion of the desert. Some researchers have questioned the amount of carbon sequestration that occurs in arid areas. Schlesinger et al. (2009) contend that previous high estimates of carbon sequestration in the Mojave Desert bear re-examination. The reduction in the use of fossil fuels because of the solar facility would prevent more carbon from entering the atmosphere than would occur by the vegetation that is currently present with the area to be disturbed by construction. For example, Fernandes et al. (2010) report that thin film PV technology reduces overall atmospheric carbon by 4 million grams of carbon per acre per year and that, by contrast, the amount of annual carbon uptake by desert land is approximately 429,000 grams of carbon per acre per year. Additionally, any changes in the level of carbon production or sequestration would be dispersed far beyond the boundaries of the action area of this Biological Opinion; consequently, we could not link any such changes to any specific impacts to desert tortoises within or outside the action area of this consultation.

The proposed actions are also unlikely to alter the surface albedo of the action area to the degree that it affects local climatic conditions. Millstein and Menon (2011) found that large-scale PV plants in the desert could lead to significant localized temperature increases (0.4˚C) and regional changes in wind patterns because the solar panels are less reflective than many substrates in the desert. As we discussed above, increases in temperatures would likely impair the activity patterns of desert tortoises.

The proposed solar facility is unlikely to affect desert tortoises in a measurable manner with regard to changes in the albedo of the action area. Although Millstein and Menon's model raises an important issue to consider, it is based on numerous assumptions that would affect how a solar facility may actually affect the local environment. Millstein and Menon acknowledge that their assumptions regarding the density of solar panels within the plant and the effectiveness of the panels would influence predictions of the amount of heat generated by the facility. Specifically, they assumed that solar panels would completely cover the ground surface (the panels generally do not cover the entire surface of the ground, which could alter the reflectivity they predicted) and a specific efficiency of the panels (they acknowledge that more efficient panels are being developed that generate less heat). Additionally, the model assumes specific reflectivity of the desert surface in two places (near Harper Dry Lake in western Mojave Desert and near Blythe in the Colorado Desert) that may be substantially different than that of the proposed project area. All of these factors would likely render the model's predictions somewhat different than real-world conditions and outcomes.

Millstein and Menon's model may be inappropriate for the scale of this Biological Opinion. The two modeled solar plants in Millstein and Menon's model covered 4,633,207 acres. The area covered by solar panels under consideration in the proposed action is approximately 575 acres. Consequently, the modeled solar plants that generated a local temperature increase of 0.4 degree Celsius was over 8,000 times larger than the area within the perimeter fence of the proposed solar facility. Therefore, the proposed action is unlikely to change local temperatures or regional wind patterns.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future non-Federal (state, tribal, local government, or private) activities without a Federal nexus that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

We anticipate that most projects that may result in adverse effects to the desert tortoise on Tribal land will fall under a BIA nexus. The cumulative effects most likely to result in adverse effects to the desert tortoise are use of existing roads and unauthorized recreation off existing roads.

Increased development not subject to section 7 may cause habitat loss, degradation, and fragmentation of desert tortoise habitat, as well as increased adverse effects to individual desert tortoises, contributing to the cumulative effects to the species.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Endangered Species Act directs Federal agencies to use their authorities to further its purposes by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

> *As a conservation recommendation, we encourage the BIA and BLM to work with solar energy project applicants to design and construction solar projects in desert tortoise habitat to allow at least a minimal amount of habitat to remain underneath the solar panels and allow tortoise to repatriate these areas following construction.*

CONCLUSION

After reviewing the range-wide status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our Biological Opinion

that the proposed action is not likely to jeopardize the continued existence of the desert tortoise. We have reached this conclusion because:

- Project impacts to desert tortoise will be minimized or avoided through implementation of measures described in the proposed action.
- The project occurs in an area with few tortoises.
- Most adult desert tortoises on the project site will be found and relocated offsite but approximately within their existing home ranges; we expect most or all of these tortoises will survive the translocation.
- Mitigation and remuneration fees, based on acres disturbed, will fund important conservation actions within the Reservation and affected desert tortoise recovery unit (i.e., Northeastern Mojave).
- Genetic and demographic connectivity maybe reduced but will continue to function.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicants. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the Terms and Conditions of this Incidental Take Statement.

The measures described below are nondiscretionary and must be implemented by the jurisdictional Federal agencies as appropriate, so that they become binding conditions of any project, contract, grant, or permit issued or approved by a Federal agency in order for the exemption in section 7(o)(2) to apply. We include all protective measures in the incidental take statement (terms and conditions), including those measures proposed by BIA and the Tribe to ensure that all measures will be incorporated into their approval documents. The Service's evaluation of the effects of the proposed action includes consideration of the measures developed by BIA, the Tribe, and Applicant, to minimize the adverse effects of the proposed action on the desert tortoise. Any subsequent changes in the minimization measures proposed by a Federal agencies as appropriate, may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR § 402.16. The Reasonable and Prudent Measures (RPMs) below are intended to clarify or supplement the proposed protective measures as part of the proposed action.

The Federal agencies have a continuing duty to regulate the activity that is covered by this Incidental Take Statement. If the Federal agencies fail to adhere to the Terms and Conditions of the incidental take statement through enforceable terms that are added to permits or grant documents, and/or fails to retain oversight to ensure compliance with these Terms and Conditions, the protective coverage of section 7(o)(2) may lapse.

Amount of Take Anticipated

Based on the scope of the proposed action, the desert tortoise survey data, analysis of impacts provided above, and proposed measures, the Service anticipates that the following take could occur as a result of the proposed Aiya Solar Project:

1. ***During site clearance of tortoises, pre-construction, and construction:*** All desert tortoises within the fenced perimeter of the project site and in harm's way with the BLM ROW should be captured and moved to within approximately 500 meters in accordance with Proposed Measure 6. Reinitiation of consultation for the Aiya Solar Project may be required if more than 12 adult desert tortoises are found in the clearance area.

   Because of the difficulty in finding juvenile desert tortoises, estimating the actual number of juvenile desert tortoises on the project site is difficult. Based on the 12 adult tortoises that are anticipated to occur in the action area (9 estimated to occur onsite + an additional 3 adult tortoises that may move onto the site before fenced), we estimate 79 juvenile desert tortoises may occur within the action area. A small but unknown number of desert tortoises may not be detected during the clearance surveys or prior to surface disturbance and may be killed or injured by project activities.

   If desert tortoise nests with eggs are present during surface disturbance, they will likely be undetected and destroyed. During tortoise clearance (removal) surveys and site preparation, it is unlikely any nests will be detected. It is impossible to quantify with any reasonable degree of accuracy how many eggs will be destroyed as a result of the project. For example, an unknown percentage of tortoise nests are destroyed by predators and not all females lay eggs every year while some females lay more than one clutch. Nests destroyed with recent hatchlings that haven't emerged would be considered take of juvenile tortoises and not eggs. If site preparation occurs after eggs hatch in late summer-early fall, or before eggs are laid in spring, no take of eggs would be expected. Because we cannot effectively estimate, detect, or quantify the number of desert tortoise eggs that may be destroyed as a result of the project, there is no basis to establish a reinitiation trigger for take of eggs. Because the number of eggs onsite affected by the project is determined by the number of reproductive-size tortoises, we will defer to the reinitiation trigger for take of 12 adult desert tortoises as a surrogate for the number of eggs taken; no eggs or nests are anticipated to occur on BLM land.

Because the Applicant is unlikely to find every individual that is killed or injured and we know that this number will be a fraction of the total number of desert tortoises present, we will consider the amount or extent of take to be exceeded if more than 1 adult desert tortoise is found dead or injured due to project activities.

2. ***During operation, maintenance, and decommissioning activities***: Operations, maintenance, and decommissioning would occur primarily within the perimeter fence; however, desert tortoises may occasionally breach the fence and would then likely be taken, either by being captured and moved outside the fence into suitable habitat or by being killed or injured. We cannot reasonably anticipate the number of desert tortoises that may breach the fence during the life of the project or predict the numbers of those individuals that would be killed, injured, or captured because of the numerous variables involved.

   Because we cannot precisely quantify the number of individuals that are likely to be killed, injured, or captured during operations, maintenance, and decommissioning of the proposed solar facility, we will consider the amount or extent of take to be exceeded if more than 2 adult desert tortoises are killed or injured within the solar facility during O&M.

Effect of Take

In the accompanying Biological Opinions, the Service determined that the level of anticipated take associated with each project individually and in combination is not likely to jeopardize the continued existence or adversely affect the recovery of the Mojave desert tortoise.

Reasonable and Prudent Measures with Terms and Conditions

The BIA, BLM, Tribe and Applicant will implement numerous conservation measures as part of the proposed action to minimize the incidental take of desert tortoises. Any proposed changes to the conservation measures or in the conditions under which project activities were evaluated may constitute a modification of the proposed action. If this modification causes an effect to desert tortoises not considered in this Biological Opinion, reinitiation of formal consultation pursuant to the implementing regulations of section 7(a)(2) of the Act (50 CFR § 402.16) may be warranted.

To be exempt from the prohibitions of section 9 of the Act, the BIA and BLM and Applicant, including the Tribe, all agents, consultants, and contractors, must comply with the proposed measures in the *Description of the Proposed Action* incorporated into this incidental take statement by reference and the following terms and conditions, which implement the Reasonable and Prudent Measures (RPM). Collectively, these measures are intended to minimize the impact of incidental take on the desert tortoise. These measures are non-discretionary. No additional RPMs or terms and conditions are provided in this incidental take statement.

DISPOSITION OF DEAD OR INJURED DESERT TORTOISES

In the event that a dead or injured desert tortoise is found within the action area, the Service and Federal agencies must include the following notification procedures in their approval or ROW grant.

1. The Applicant must notify the Southern Nevada Fish and Wildlife Office by telephone (702 515-5230) or email within 24 hours of locating any dead or injured desert tortoises. The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

2. Transport injured desert tortoises to a qualified veterinarian for treatment. Contact the Service regarding their final disposition if any injured desert tortoises survive.

3. Handle dead specimens to preserve biological material in the best possible state for later analysis, if such analysis is needed. The Service will make this determination when notified that a desert tortoise has been killed by project activities.

REINITIATION NOTICE

This concludes formal consultation on the proposed Federal actions required for the Aiya Solar Project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take specified in the incidental take statement is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may lapse and any further take may be a violation of section 4(d) or 9. Consequently, any operations causing such take shall cease pending reinitiation.

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APPENDIX A. 5-YEAR WORK PLAN TASKS

Project Description:
The Work Plan was developed to identify specifics tasks in the effort to conserve native desert tortoises and their habitat in the northern Mojave Desert associated with the Moapa River Indian Reservation. This Work Plan serves to accomplish the goals of the Desert Conservation Plan as approved by the Moapa Band of Paiute Business Council in conjunction with the Bureau of Indian Affairs and the U.S. Fish and Wildlife Service.

Specific 2015-2020 Work Plan Tasks:

This AWP has outlined potential measures that will aid in limiting and/or minimizing threats to desert tortoises and their habitat within the Moapa River Indian Reservation. Implementation of these tasks may be initiated and/or adapted as needed throughout the 5-year plan period. The Tribe is committed to completing Year 1 activities by the end of 2015 with approval from the Service. Consecutive years (2-5) Task planning will be submitted on a yearly basis and the outline below is for planning purposes only.

Task	Cost	Work to be Performed by	Date to be Completed
YEAR 1			
1. Create and put up signage at the 6,000 acre conservation area notifying of protected habitat.	$5,000 - $10,000	Cardno Inc. and Fast Signs of Las Vegas	Dec. 31, 2015
2. Table-top mapping assessment of the entire Reservation to determine suitable areas for DETO conservation vs. future project areas.	$10,000	Cardno Inc.	Dec. 31, 2015
3. Create school brochures for elementary – high school students based on DETO, invasive and other rare plants	$15,000	Cardno Inc.	Dec. 31, 2015
YEAR 2			
1. Install 5 miles of desert tortoise fencing on high use/occupancy future roads with tortoise crossing features.	$500,000	Fence contractor	August 30, 2016
2. Grow desert tortoise forage and shelter species via local seed sources at Reservation nursery for use during restoration projects.	$200,000	Tribe Nursery and Qualified Consultant if needed	Dec. 31, 2016
3. Contract with environmental consultant to perform desert tortoise presence/absence surveys (population estimates) and vegetation surveys per	$50,000 - $75,000 each	Qualified environmental consultant- TBD	June 1, 2016 and October 15, 2016

1,000 acre tracts at various locations on Reservation			
YEAR 3			
1. Vegetation Enhancement Program at previously identified Tortoise Conservation Areas.	$250,000 - $500,000	Qualified Consultant and/or Restoration Specialist	Dec. 31, 2017
YEAR 4			
1. Contract with environmental consultant to restore OHV roads and trails	$100,000 - $250,000	Qualified restoration specialists	June 1, 2018
2. Create and install additional signage along roads and other high-visibility areas within Reservation to identify conservation areas, presence of DETO, etc.	$5,000-$10,000	Cardno Inc. and Fast Signs of Las Vegas	Dec. 31, 2018
YEAR 5			
Post Vegetation Restoration Studies on ORV trails and within Desert Tortoise Conservation Areas.	$50,000	Qualified Consultant and/or Restoration Specialist	Oct. 31, 2019

APPENDIX B. NATIONAL FISH AND WILDLIFE FOUNDATION SECTION 7 FEE FORM

SOUTHERN NEVADA MITIGATION AND CONSERVATION ACCOUNT
MOJAVE DESERT TORTOISE SUB-ACCOUNT DEPOSIT DOCUMENT

The applicable Action Agency is responsible for completing this form and submitting it to USFWS for review and approval. The USFWS Agency Representative for the Mojave Desert Tortoise Sub-Account is responsible for submitting the approved deposit document to NFWF when a project proponent is prepared to deposit funds with NFWF. The deposits identified in the deposit document will be made by the project proponent to NFWF directly.

Project Name: Aiya Solar Project

Biological Opinion Number and Date: 84320-2015-F-0298

Project Phase: (if applicable) n/a

Project Location: (i.e. County) Moapa River Indian Reservation, Clark County, NV

Land Ownership of Project Site: (if publicly owned, identify the applicable government entity)
Moapa Band of Paiutes

Project Proponent: First Solar

Action Agency (check if applicable) and Decision Documents: (identify by name, date, and identification #)

☐ **Federal Highway Administration**
☐ Decision Document Attached
Project Identification or Tracking #: _____

☐ **National Park Service**
☐ Decision Document Attached
Project Identification or Tracking #: _____

☐ **Western Area Power Administration**
☐ Decision Document Attached
Project Identification or Tracking #: _____

☐ **U.S. Army Corps of Engineers**
☐ Decision Document Attached
Project Identification or Tracking #: _____

[ ] **U.S. Bureau of Reclamation**
[ ] Decision Document Attached
Project Identification or Tracking #: _____

[ ] **Nellis Air Force Base**
[ ] Decision Document Attached
Project Identification or Tracking #: _____

[X] **U.S. Bureau of Indian Affairs**
[X] Biological Opinion Attached
Project Identification or Tracking #: _____

[X] **Other (Specify)** Moapa Band of Paiutes
[X] Biological Opinion Attached
Project Identification or Tracking #: _____

Monies Required for Deposit: $ 566,496

Deposit Document:

Prepared and Submitted to USFWS by Action Agency

Name: _____
Title: _____
Phone: _____
Email: _____
Signed: _____
Date: _____

Approved and Submitted to NFWF by USFWS

Name: Michael J. Senn
Title: Field Supervisor
Phone: (702) 515-5230
Email: Michael_Senn@fws.gov
Signed: _____
Date: _____

APPENDIX C. SOLAR PROJECTS FOR WHICH THE U.S. FISH AND WILDLIFE SERVICE HAS ISSUED BIOLOGICAL OPINIONS OR INCIDENTAL TAKE PERMITS

The following table summarizes information regarding the solar projects that have undergone formal consultation with regard to the desert tortoise. In the Citations column, a single reference indicates that the acres of desert tortoise habitat and number of desert tortoises are estimates from the Biological Opinion; when the column includes two citations, the first is for the acreage of habitat and the estimated number of desert tortoises from the Biological Opinion and the second is for number of desert tortoises that were found onsite prior to or during construction.

Solar Projects undergoing formal consultation within Desert Tortoise Recovery Units

Project and Recovery Unit	Acres of Desert Tortoise Habitat	Desert Tortoises Estimated[1]	Desert Tortoises Observed[2]	Citations[3]
Eastern Mojave				
Ivanpah Solar Electric Generating System	3,582	1,136	175[7]	Service 2011a, Davis 2014
Stateline Solar	1,685	947	34	Service 2013a, LaPre 2014
Silver State North – NV	685	14[6]	4	Service 2010a, Cota 2013
Silver State South – NV	2,427[4]	1,020[4]	152	Service 2013a, Cota 2014
Amargosa Farm Road – NV	4,350	4[6]	-	Service 2010e
Nevada Solar One - NV	400	[5]	[5]	Burroughs 2012, 2014
Copper Mountain North - NV	1,400	30[5]	30[5]	Burroughs 2012, 2014
Copper Mountain - NV	380	[5]	[5]	Burroughs 2012, 2014
Townsite Solar Project	936	2[8]	-	Burroughs 2015
Techren Boulder City Solar Project	2,304	10	-	Burroughs 2015
Western Mojave				
Abengoa Harper Lake	Primarily in abandoned agricultural fields	4[6]	-	Service 2011b
Chevron Lucerne Valley	516	10	-	Service 2010b
Northeastern Mojave				
Res Americas Moapa Solar Energy Center - NV	951	95	-	Burroughs 2015
Moapa K Road Solar - NV	2,141	186	157	Service 2012, Burroughs 2013

Colorado				
Genesis	1,774	8	0	Service 2010c, Fraser 2014a
Blythe	6,958	30	0	Service 2010d, Fraser 2014b
Desert Sunlight	4,004	56	7	Service 2011c, Fraser 2014a
McCoy	4,533	15	0	Service 2013b, Fraser 2014b
Desert Harvest	1,300	5	-	Service 2013c
Rice	1,368	18	1	Service 2011d, Fraser 2014a
Total	**41,694**	3,590	560	

1. The numbers in this column are not necessarily comparable because the methodologies for estimating the numbers of desert tortoises occasionally vary between projects. When available, we included an estimate of the numbers of small desert tortoises.
2. This column reflects the numbers of desert tortoises observed within project areas. It includes translocated animals and those that were killed by project activities. Project activities may result in the deaths of more desert tortoises than are found. Dashes represent projects for which we have no information at this point; some projects had not broken ground at the time of this Biological Opinion.
3. The first citation in this column is for both the acreage and the estimate of the number of desert tortoises. The second is for the number of desert tortoises observed during construction of the project; where only one citation is present, construction has not begun or data are unavailable at this time.
4. These numbers include Southern California Edison's Primm Substation and its ancillary facilities.
5. These projects occurred under the Clark County Multi-species Habitat Conservation Plan; the provisions of the habitat conservation plan do not require the removal of desert tortoises. We estimate that all three projects combined will affect fewer than 30 desert tortoises.
6. These estimates do not include smaller desert tortoises.
7. In the table attached to the electronic mail, the number of desert tortoises translocated from the project site is represented by the total number of translocated animals minus the number of animals born in the holding pens.
8. The estimate of the number of desert tortoises is from the portion of the project on BLM land (52 acres). The remaining lands are covered by the Clark County Multi-species Habitat Conservation Plan; see footnote 5.
9. The estimate of the number of desert tortoises is from both BLM (104 acres) and private (2,200 acres) land. The remaining lands are covered by the Clark County Multi-species Habitat Conservation Plan; see footnote 5.

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U.S. Fish and Wildlife Service. 2012. Biological opinion for the K Road Moapa Solar Project, Moapa River Indian Reservation, Clark County, Nevada. Memorandum to Superintendent, Southern Paiute Agency, Bureau of Indian Affairs. St. George, Utah. Dated March 7. From State Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2013a. Biological opinion for the Stateline Solar and Silver State Solar South Projects, San Bernardino County, California, and Clark County, Nevada. Dated September 30. Memorandum to Field Manager, Needles Field Office, Bureau of Land Management, Needles California, and Assistant Field Manager, Las Vegas Field Office, Bureau of Land Management, Las Vegas, Nevada. From Acting Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2013b. Biological opinion on the McCoy Solar Power Project, Riverside County, California. Dated March 6. Memorandum to Field Manager, California Desert District Office, Bureau of Land Management, Moreno Valley, California. From Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

U.S. Fish and Wildlife Service. 2013c. Biological opinion on the Desert Harvest Solar Project, Riverside County, California [CACA 044919]. Dated January 15. Memorandum to Field Manager, Palm Springs-South Coast Field Office, Bureau of Land Management, Moreno Valley, California. From Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

Appendix P

Draft Memorandum of Agreement (MOA)

DRAFT
MEMORANDUM OF AGREEMENT
AMONG THE
BUREAU OF INDIAN AFFAIRS, WESTERN REGIONAL OFFICE
MOAPA BAND OF PAIUTE INDIANS
BUREAU OF LAND MANAGEMENT
AIYA SOLAR PROJECT, LLC
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER
REGARDING
RESOLUTION OF ADVERSE EFFECTS FOR THE
AIYA SOLAR PROJECT ON THE MOAPA RIVER INDIAN RESERVATION

Bureau of Indian Affairs, Western Regional Office
January 6, 2016

MEMORANDUM OF AGREEMENT
AMONG THE
BUREAU OF INDIAN AFFAIRS, WESTERN REGIONAL OFFICE
MOAPA BAND OF PAIUTE INDIANS
BUREAU OF LAND MANAGEMENT
AIYA SOLAR PROJECT, LLC
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER
REGARDING
RESOLUTION OF ADVERSE EFFECTS FOR THE
AIYA SOLAR PROJECT ON THE MOAPA RIVER INDIAN RESERVATION

WHEREAS, the Regional Director of the Bureau of Indian Affairs, Western Regional Office (BIA/WRO), is responsible as Agency Official for Western Region compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and codified in Subpart B of Code of Federal Regulations Title 36, Part 800 (36 CFR 800), and BIA/WRO shall serve as lead agency for the proposed undertaking; and

WHEREAS, the Moapa Band of Paiute Indians (Tribe) is a federally recognized Indian tribe, organized under Section 16 of the Indian Reorganization Act of 1934, 25 U.S.C. § 476, which exercises general governmental jurisdiction over all lands of the Moapa River Indian Reservation; for purposes of this consultation is an Indian tribe as described at 36 CFR 800.2(c)(2)(i)(B); and as contemplated in the referenced regulation a Signatory to this Memorandum of Agreement (Agreement); and

WHEREAS, the undertaking before BIA/WRO is approval of a lease and rights-of-way for the Aiya Solar Project, a 100 megawatt solar photovoltaic electricity generation facility that will encumber up to 1,000 acres on the Moapa River Indian Reservation; and

WHEREAS, the Bureau of Land Management Southern Nevada District Office (BLM) will be asked to grant an easement for right-of-way for an associated transmission line and access road that would encumber up to an approximately additional 13 acres and is a Signatory to this Agreement; and

WHEREAS, Aiya Solar Project, LLC (Aiya Solar), as project proponent, intends to construct, operate, and maintain the solar facility under lease terms extending up to a maximum period of 50 years and is an Invited Signatory to this Agreement; and

WHEREAS, the Nevada State Historic Preservation Officer (SHPO) is authorized to enter into this Agreement as a Signatory in order to fulfill its role of advising and assisting federal agencies in carrying out their historic preservation responsibilities and cooperate with these agencies under the following federal statutes: Sections 101 and 106 of the NHPA, 54

U.S.C. 306108, 36 CFR 800.2(c)(1)(i) and 800.6(b), and BIA/WRO has consulted with the SHPO pursuant to 36 CFR 800.6 in the development of this Agreement; and

WHEREAS, BIA/WRO in consultation with the Consulting Parties has determined that the undertaking will cause adverse effects to the historic properties identified as 26CK10094 (multicomponent site with rock rings, lithics, and ceramics), 26CK10095 (prehistoric site with rock ring, possible cradle board rest, and lithics), and 26CK10165 (North/South Road), a historic road that possibly is an offshoot of the Old Spanish Trail/Old Mormon Road (26CK3848), all of which are on Tribal land; and

WHEREAS, BIA/WRO has consulted with the Las Vegas Paiute Tribe, Kaibab Band of Paiute Indians, Hualapai Indian Tribe, Fort Mojave Indian Tribe, Hopi Tribe, Colorado River Indian Tribes, Chemehuevi Indian Tribe, and Paiute Indian Tribe of Utah in accordance with 36 CFR 800.3(f)(2); the Hopi Tribe has responded to our request to consult on the undertaking and is invited to concur with this Agreement; and

WHEREAS, BIA/WRO has consulted with the National Park Service National Trails System-Intermountain Region, which has joint management responsibilities with BLM for the nearby congressionally designated Old Spanish National Historic Trail, and is invited to concur with this Agreement; and

WHEREAS, BIA/WRO has notified the Advisory Council on Historic Preservation (Advisory Council) of this determination of adverse effect pursuant to 36 CFR 800.6(a)(1) and that office has notified BIA/WRO by letter dated Month Day, 2015 that it has declined/ decided to participate in this Agreement; and

WHEREAS, BIA/WRO is preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) for the Aiya Solar Project and has used the public notification process embodied in NEPA to seek public input and notify the public of the potential effects of the undertaking on historic properties as required in 36 CFR Part 800; and

WHEREAS, no provision of this Agreement shall be construed by any of the Signatories or Invited Signatory as abridging or debilitating any sovereign powers of the Tribe; affecting the trust relationship between the Secretary of the Interior and the Tribe; or interfering with the government-to-government relationship between the United States and the Tribe.

NOW, THEREFORE, BIA/WRO, Tribe, BLM, Aiya Solar, and SHPO, as Signatories and Invited Signatory to this Agreement, agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS.

BIA/WRO shall ensure that the following stipulations are implemented.

I. HISTORIC PROPERTIES TREATMENT PLAN.

A. BIA/WRO shall develop and implement, in consultation with the consulting parties (Signatory, Invited Signatory, and Concurring Parties), a Historic Properties Treatment Plan (HPTP) to avoid, reduce, or otherwise resolve adverse effects to historic properties within the area of potential effects (APE) before any ground disturbance occurs within the boundary of any historic property. The treatment plan shall emphasize avoidance, protection, and long-term monitoring of avoided historic properties; treatment for historic properties that cannot be avoided; and, as applicable, other measures to reduce or mitigate adverse effects to historic properties. The HPTP will be consistent with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 FR 44734-44737).

B. For the historic properties 26CK10094 and 26CK10095, the HPTP will specify:

1. The properties or portions of properties where treatment is to be carried out, and will identify any property or portion of property that would be destroyed or altered without treatment, and a rationale for untreated portions;
2. The results of previous research relevant to the undertaking and the research questions to be addressed through data recovery, with an explanation of their relevance and importance;
3. The field and laboratory analysis methods to be used, with an explanation of their relevance to the research questions;
4. The methods to be used in data management and dissemination of data to the professional community and the public, including a proposed schedule for undertaking tasks, and a schedule for the submission of draft and final reports to consulting parties;
5. The proposed disposition and curation of recovered materials and records in accordance with 36 CFR 79;
6. Procedures for monitoring, evaluating, and mitigating any unexpected effects to historic properties during construction of the Undertaking, including consultation with other parties;
7. A Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action for the treatment of human remains, in the event that such remains are discovered. The Plan of Action shall describe methods and procedures for the recovery, inventory, treatment, and disposition of Human Remains, Associated/Unassociated Funerary Objects, and Objects of Cultural Patrimony;
8. A plan for suspension/termination of the Project that stipulates the procedures to be followed if the project is halted for any reason during data recovery;

9. Preparation of a Preliminary Report of Findings and review process, as well as proposed timelines;
10. Preparation of a Data Recovery Report and review process, as well as proposed timelines.

C. For the North/South Road (26CK10165), the HPTP will specify an interpretive program that adequately captures those values of the property that make it eligible for the National Register.

D. Review and Comment on the HPTP

1. Upon receipt of the draft HPTP, BIA/WRO will review and subsequently submit the document concurrently to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to BIA/WRO. All comments shall be in writing. Lack of response within this review period will be taken as concurrence with the adequacy of the HPTP.
2. BIA/WRO shall ensure that any written comments received are taken into account during the preparation of the document.
3. If revisions to the HPTP are made, all consulting parties have 30 calendar days from receipt to review the comments made by other consulting parties, review the revisions and provide comments to BIA/WRO. Lack of response during this review period will be taken as concurrence with the adequacy of the revised HPTP.
4. Once consultation on the HPTP is complete, BIA/WRO shall issue authorization to proceed with the implementation of the HPTP prior to construction. Authorization will be contingent upon obtaining the necessary permits.
5. Copies of the final HPTP will be provided to all consulting parties.

II. PRELIMINARY REPORT OF FINDINGS.

A. Within 14 calendar days after the completion of all fieldwork at 26CK10094 and 26CK10095, the institution, firm, or consultant responsible for the work will prepare and submit a brief Preliminary Report of Findings to BIA/WRO. This report shall contain, at a minimum:

1. A discussion of the methods and treatments applied to each property, with an assessment of the degree to which these methods and treatments followed the direction provided by the HPTP along with a justification of all deviations, if any, from the approved HPTP;
2. Topographic site plans for the properties depicting all features and treatment areas;
3. General description of recovered artifacts and other data classes, including features excavated or sampled;

4. Discussion of further analyses to be conducted, including any proposed changes in the methods or levels of effort from those proposed in the HPTP.

B. BIA/WRO will distribute the draft Preliminary Report of Findings to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to BIA/WRO. All comments shall be in writing (electronic mail is acceptable). Lack of response within this review period will be taken as concurrence with the adequacy of the report.

1. If revisions to the Preliminary Report of Findings are made, all consulting parties will have 30 calendar days from receipt to review the revisions and provide comments to BIA/WRO. Lack of response within this review period will be taken as concurrence with the adequacy of the revised report.
2. BIA/WRO shall ensure that any written comments received are taken into account during the preparation of the final document.
3. If a Signatory or Invited Signatory objects to any aspect of the report, the BIA/WRO shall resolve the objection according to the Section XI, Dispute Resolution stipulation of this agreement.
4. Once the Preliminary Report of Findings has been accepted as a final document, BIA/WRO will notify appropriate project participants that construction can commence.

III. DATA RECOVERY REPORT

A. Within 365 calendar days of completion of data recovery, a comprehensive data recovery report will be prepared that incorporates all appropriate data analyses and interpretations.

B. BIA/WRO will distribute the draft Data Recovery Report to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to BIA/WRO. All comments shall be in writing (electronic mail is acceptable). Lack of response within this review period will be taken as concurrence with the adequacy of the report.

1. If revisions to the data recovery report are made, all consulting parties will have 30 calendar days from receipt to review the revisions and provide comments to BIA/WRO. Lack of response within this review period will be taken as concurrence with the adequacy of the revised report.
2. BIA/WRO shall ensure that any written comments received are taken into account during the preparation of the final document.
3. If a Signatory or Invited Signatory continues to object to any aspect of the report, the BIA/WRO shall resolve the objection according to the Section XI, Dispute Resolution stipulation of this Agreement.

IV. IDENTIFICATION, EVALUATION, DOCUMENTATION, AND RESOLUTION OF ADVERSE EFFECTS TO TRADITIONAL CULTURAL PLACES

BIA/WRO shall ensure that consultation with the Native American Tribes that may attach religious or cultural importance to affected properties will continue throughout the life of the project in order to identify, evaluate, document, and mitigate possible impacts to Traditional Cultural Properties according to the National Park Service *National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Properties*.

V. STANDARDS FOR MONITORING, TESTING, AND DATA RECOVERY

All cultural resources work carried out pursuant to this Agreement shall be carried out by or under the supervision of a person, or persons, meeting the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739) and under the terms of the permits issued for the archaeological investigations.

VI. CUSTODY OF ARCHAEOLOGICAL RESOURCES AND RECORDS

With exception of human remains or objects that fall under NAGPRA, the disposition of recovered archeological resources shall follow the regulations at 25 CFR 262.8, whereby all such resources are property of the Tribe. Likewise, upon completion of the Final Treatment Report, all notes, photos, reports, and other records related to this project shall be delivered to Tribe and are the property of the Tribe.

Subject to the terms and provisions of the Freedom of Information Act (FOIA), all reports and information generated by BIA efforts to comply with NHPA are to be considered confidential and privileged and shall be withheld from the public, pursuant to Section 304 of NHPA (36 CFR 800.11(c)) and Section 9 of the Archeological Resources Protection Act.

VII. DISCOVERIES IN THE APE

If cultural resources or human remains are discovered after construction begins, the person in charge of the construction shall require construction to immediately cease within the area of the discovery, take steps to protect the discovery, and promptly report the discovery to the Tribe and BIA/WRO.

A. If the discovery involves human remains or objects that fall under NAGPRA, the person in charge of construction shall immediately take steps to secure the

discovery and notify Tribal representatives identified in the NAGPRA Plan of Action in the HPTP provided for in Stipulation I of this agreement.

B. If human remains are not involved, the BIA/WRO shall determine if the approved HPTP provided for in Stipulation I of this agreement is appropriate to the nature of the discovery. If appropriate, the HPTP shall be implemented by BIA/WRO. If the HPTP is not appropriate to address the discovery, BIA/WRO shall ensure that an alternative plan for the resolution of adverse effects is developed and provided to the Signatories, Invited Signatory, and Concurring Parties for review and comment.

C. The BIA/WRO shall notify the Tribe and SHPO of all discoveries.

VIII. CHANGES IN THE AREA OF POTENTIAL EFFECTS.

If a change in the APE is determined to be necessary, BIA/WRO will initiate review, evaluation, and determination of effects in consultation with the Consulting Parties to this Agreement pursuant to 36 CFR 800.4 through 800.6.

IX. REVIEW OF PUBLIC OBJECTIONS

At any time during implementation of the measures stipulated in this Agreement, should an objection to any such measure or its manner of implementation be raised by a member of the public, BIA/WRO shall take the objection into account and consult as needed with the objecting party and the Consulting Parties to this Agreement to resolve the objection.

X. AMENDMENT

If any Signatory or Invited Signatory to this Agreement determines that its terms will not or cannot be carried out or that an amendment to its terms is necessary, that party shall immediately consult with the other parties to develop an amendment to this Agreement pursuant to 36 CFR 800.6(c)(7) and 800.6(c)(8). The amendment will be effective on the date a copy signed by all of the original Signatories and Invited Signatory is filed with the Advisory Council. If the Signatories and Invited Signatory cannot agree to appropriate terms to amend the Agreement, any Signatory or Invited Signatory may terminate it in accordance with Stipulation XII.

XI. DISPUTE RESOLUTION

Should any Signatory or Invited Signatory to this Agreement object to any action(s) or

plan(s) pursuant to this Agreement, BIA/WRO shall consult with the objecting party within 30 days to resolve the objection. The objection must be identified specifically and the reasons for objection documented in writing. If the objection cannot be resolved, BIA/WRO shall notify the Consulting Parties to this Agreement of the objection and shall:

A. Forward all documentation relevant to the dispute to the Advisory Council in accordance with 36 CFR 800.2(b)(2). Any comment provided by the Advisory Council, and all comments from the Signatories or Invited Signatory to this Agreement, will be taken into account by BIA/WRO in reaching a final decision regarding the dispute.

B. If the Advisory Council does not provide any comments regarding the dispute within 30 days after receipt of adequate documentation, BIA/WRO may render a decision regarding the dispute. In reaching its decision, BIA/WRO will take into account all written comments regarding the dispute from the Signatories or Invited Signatory to the Agreement.

C. BIA/WRO will notify all Signatories and the Invited Signatory of its decision in writing before implementing that portion of the undertaking subject to dispute under this stipulation. BIA/WRO decision will be a final agency decision.

D. It is the responsibility of the BIA/WRO to carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute.

XII. TERMINATION

Termination of this Agreement will occur ten years from execution of the last signature of the Agreement or until BIA/WRO, in consultation with the Consulting Parties, determines that all of its terms have been satisfactorily fulfilled.

If this Agreement is not amended following the consultation process set out in Stipulation X, or if the Signatories and Invited Signatory to the agreement fail to reach agreement, the Agreement may be terminated by any Signatory or Invited Signatory. Within 30 days following termination, the BIA/WRO shall notify the parties if it will initiate consultation to execute an Agreement with the Signatories and Invited Signatory under 36 CFR 800.6(c)(1) or request the comments of the Advisory Council under 36 CFR 800.7(a) and proceed accordingly.

XII. EXECUTION OF THIS AGREEMENT

This Agreement will be null and void if its terms are not carried out within ten years from the date of its execution, unless the Signatory Parties and Invited Signatory agree in writing

to an extension. Execution and implementation of this Agreement evidences that the BIA/WRO and BLM have taken into account the effects of the undertaking on historic properties and has afforded the Advisory Council an opportunity to comment on the undertaking and its effects.

Counterparts: This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument. The BIA/WRO will distribute copies of all signed pages to the Signatory, Invited Signatory, and Concurring Parties once the Agreement is executed in full.

_____

_____

SIGNATORY PARTIES:

APPROVED: BUREAU OF INDIAN AFFAIRS, WESTERN REGIONAL OFFICE

By:_____ Date_____
Regional Director

APPROVED: MOAPA BAND OF PAIUTE INDIANS

By:_____ Date_____
Chairman, Moapa Business Council

APPROVED: BUREAU OF LAND MANAGEMENT, SOUTHERN NEVADA DISTRICT, LAS VEGAS FIELD OFFICE

By:_____ Date_____
Field Office Manager

APPROVED: NEVADA STATE HISTORIC PRESERVATION OFFICE

By:_____ Date_____
State Historic Preservation Officer

INVITED SIGNATORY PARTY:

APPROVED: AIYA SOLAR PROJECT, LLC

By:_____ Date_____
Vice President, Project Development

CONCURRING PARTIES:

APPROVED: National Park Service, National Trails System-Intermountain Region

By:_____ Date_____
Manager

APPROVED: Hopi Tribe

By:_____ Date_____
Chairman, Hopi Tribal Council